MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT: YEAR 2001

Fourchette Creek Reservoir Complex Phillips County, Montana



Prepared for:

MONTANA DEPARTMENT OF TRANSPORTATION
2701 Prospect Avenue
Helena, MT 59620-1001

Prepared by: **LAND & WATER CONSULTING, INC.** P.O. Box 8254 Missoula, MT 59807

July 2002

Project No: 130091.023



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1.0 INTRODUCTION

The Fourchette Creek Reservoir Complex was constructed in the Missouri River Breaks in 1997 and is considered the first wetland mitigation bank constructed by the Montana Department of Transportation (MDT) (Urban pers. comm.). The project was enacted to mitigate wetland impacts associated with several MDT projects constructed between 1992 and 1995 that resulted in the cumulative loss of 9.84 wetland acres. These include Stanford East & West, Geyser-North, Eddies Corner-South, Ross Fork Creek – Judith Basin County, Judith River – 6 miles NW of Moore, and Ross Fork Creek – 5 Miles NW of Moore. Constructed in Watershed #9 (Middle Missouri) within the MDT Glendive District, the site is located approximately 15 miles southwest of Sun Prairie (50 miles south of Malta) in Phillips County (**Figure 1**). The site occurs on Bureau of Land Management (BLM) lands roughly 2 miles west and 1.5 miles north of the Charles M. Russell National Wildlife Refuge.

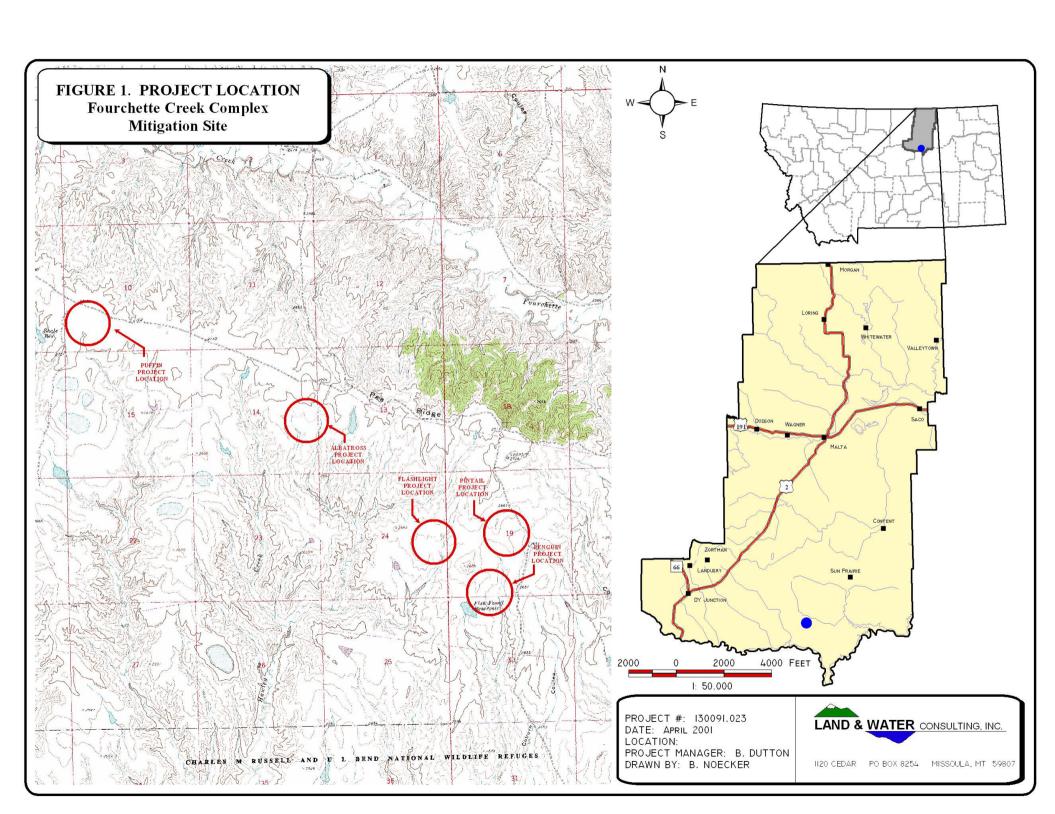
In conjunction with the BLM, MDT's intent was to construct five 2.6 to 6-acre shallow reservoirs at the mitigation site: Puffin, Albatross, Flashlight, Pintail, and Penguin (**Figure 1**). Spaced over approximately four linear miles, these structures were designed to maximize surface area with water depths less than 3 feet, maximizing the potential for establishment of emergent vegetation. The reservoirs were constructed in intermittent drainages to collect surface runoff during spring snowmelt and rainstorm events. No wetlands were present in these areas prior to construction (MDT undated).

The primary objectives at the mitigation site are to provide waterfowl pair and brood habitat and promote greater distribution and use of available habitat for additional wildlife species by providing water sources, food, and cover. Specifically, MDT and BLM seek to provide approximately 10 to 22 acres of emergent wetlands with semi-permanent, fresh-mixosaline water regimes at the mitigation site. Primary wetland functions to be provided include streambank stabilization; nutrient detention/removal/transformation; sediment detention/reduction; intra/inter ecosystem integrity maintenance; and provision of a setting for recreational activities (MDT undated).

Final general success criteria at each reservoir include provision of: waterfowl pair and brood habitat (open water interspersed with emergent vegetation); a mosaic of emergent wetland vegetation communities; and adequate hydrology (maximization of areas three feet in depth) (MDT undated). Again, the goal was to create between 10 and 22 wetland acres between the five ponds.

Specific performance criteria identified in the monitoring plan contained within the project prospectus (MDT undated) address percent cover of emergent species and wetland functions. The plan states that the goal is to provide Type 3 and/or Type 4 wetlands according to the U.S. Fish & Wildlife Service (USFWS) Circular 39 definition of wetland types, with the provision of 10 to 20 percent emergent species cover within 5 years of construction. According to the monitoring plan, primary functions to be evaluated using the MDT method include wildlife use, enhanced biodiversity, water retention, silt retention, recreational opportunity, and erosion control.





Monitoring methods outlined in the plan include: estimation of percent canopy cover of wetland vegetation; mapping of vegetation zones and open water; annual photograph points; water quality sampling; and macroinvertebrate sampling. With the exception of water quality sampling, which will be conducted separately by MDT (Urban pers. comm.), each of these methods was employed during 2001 monitoring.

No monitoring has been conducted by MDT since the site was constructed. This site will be monitored once per year over the 3-year contract period. The specific monitoring areas are illustrated in **Figure 2** for each site (**Appendix A**).

2.0 METHODS

2.1 Monitoring Dates and Activities

Each of the five reservoirs was visited on August 30th, 2001. All information contained on the Wetland Mitigation Site Monitoring Form (**Appendix B**) was collected at this time. Activities and information conducted/collected included: wetland delineation; mapping of wetland/open water aquatic habitat boundaries; vegetation community mapping; soils data; hydrology data; bird and general wildlife use; photograph points; macroinvertebrate sampling; GPS data points; functional assessment; and (non-engineering) examination of dike structures. Vegetation transects were not required at this site (Urban pers. comm.).

2.2 Hydrology

Hydrologic indicators were evaluated at each impoundment during the mid-season visit. Predicted high-water lines for each impoundment are presented on plan sheets in **Appendix D**. Wetland hydrology indicators were recorded using procedures outlined in the Army Corps (COE) 1987 Wetland Delineation Manual (Environmental Laboratory 1987). Hydrology data was recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**).

All additional hydrologic data were recorded on the mitigation site monitoring form (**Appendix B**). The boundary between wetlands and open water aquatic habitats (no rooted vegetation present) was mapped on the aerial photograph and an estimate of the average water depth at this boundary was recorded.

No groundwater monitoring wells occur at the site. If located within 18 inches of the ground surface (soil pit depth for purposes of delineation), groundwater depths were documented on the routine wetland delineation data form at each data point.

2.3 Vegetation

At each impoundment, general dominant species-based vegetation community types were delineated on an aerial photograph during the mid-season visit. Standardized community mapping was not employed as many of these systems are geared towards climax vegetation and may not reflect yearly changes. Estimated percent cover of the dominant species in each



community type was listed on the site monitoring form (**Appendix B**). Establishment of permanent vegetation transects was not required at this mitigation site (Urban pers. comm.).

A comprehensive plant species list was compiled and will be updated as new species are encountered. Ultimately, observations from past years will be compared with new data to document vegetation changes over time. No woody species were planted at any of the impoundments and no monitoring relative to the survival of such species was conducted.

2.4 Soils

Soils were evaluated during the mid-season visit according to hydric soils determination procedures outlined in the COE 1987 Wetland Delineation Manual. Soil data were recorded for each wetland determination point on the COE Routine Wetland Delineation Data Form (**Appendix B**). The most current terminology used by NRCS was used to describe hydric soils (USDA 1998).

2.5 Wetland Delineation

Wetland delineation was conducted at each impoundment according the 1987 COE Wetland Delineation Manual. Wetland and upland areas within the monitoring area were investigated for the presence of wetland hydrology, hydrophytic vegetation and hydric soils. The indicator status of vegetation was derived from the National List of Plant Species that Occur in Wetlands: North Plains Region 4 (Reed 1988). The information was recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**). The wetland/upland boundary was delineated on the aerial photo and recorded with a resource grade GPS unit. The wetland/upland boundary in combination with the wetland/open water habitat boundary was be used to calculate the jurisdictional wetland area developed at each impoundment.

2.6 Mammals, Reptiles, and Amphibians

Mammal, reptile, and amphibian species observations and other positive indicators of use, such as vocalizations, were recorded on the wetland monitoring form during each mid-season visit. Indirect use indicators, including tracks; scat; burrows; eggshells; skins; bones; etc., were also recorded. These observations were recorded as the observer traversed the site while conducting other required activities. Direct sampling methods, such as snap traps, live traps, and pitfall traps, were not implemented. A comprehensive species list for the entire site was compiled. Observations from past years will ultimately be compared with new data.

2.7 Birds

Bird observations were recorded during the mid-season visit. No formal census plots, spot mapping, point counts, or strip transects were conducted. Using the bird survey protocol (**Appendix E**) as general guidance, species were recorded as an observer traversed each impoundment during the mid-season visit. In general, bird observations were recorded incidental to other monitoring activities. Observations were categorized by species, activity code, and



general habitat association (see data forms in Appendix B). Observations from past years will be compared with new data.

2.8 Macroinvertebrates

Macroinvertebrate samples were collected during the mid-season site visit and data recorded on the wetland mitigation monitoring form. Per MDT instruction, a single sample was collected at Puffin, Albatross, Flashlight, and Penguin reservoirs (Urban pers. comm.). Macroinvertebrate sampling procedures are included in **Appendix E**. The approximate locations of these sample points are shown on **Figure 2** for each site (**Appendix A**). Samples will be preserved as outlined in the sampling procedure and sent to a laboratory for analysis.

2.9 Functional Assessment

Functional assessments were completed at each wetland impoundment using the 1999 MDT Montana Wetland Assessment Method. Field data necessary for this assessment was collected during the mid-season site visit. An abbreviated field data sheet for the 1999 MDT Montana Wetland Assessment Method was compiled to facilitate rapid collection of field information (**Appendix B**). The remainder of the functional assessment was completed in the office.

2.10 Photographs

Photographs were taken showing the current land use surrounding the site, the upland buffer, the monitored area, and macroinvertebrate sampling locations. Each photograph point location was recorded with a resource grade GPS. The approximate location of these photo points is shown on **Figure 2** for each site (**Appendix A**). All photographs were taken using a 50 mm lens. A description and compass direction for each photo was recorded on the wetland monitoring form.

2.11 GPS Data

During the 2001 monitoring season, survey points were collected with a resource grade GPS unit at all photograph locations and along wetland boundaries.

2.12 Maintenance Needs

Dike structures were examined during the site visit for obvious signs of breaching, damage, or other problems. This did not constitute an engineering-level structural inspection, but rather a cursory examination. Current or future potential problems were documented.



3.0 RESULTS

3.1 Hydrology

According to the Western Regional Climate Center, Zortman (20 miles northwest of site) yearly precipitation totals for 2000 (2.19 inches) and 2001 (13.78 inches) were 12 and 74 percent, respectively, of the total annual mean precipitation (18.87 inches) in this area.

Inundation was present at each of the five impoundments. Overall, water depths at open water/rooted vegetation interfaces ranged between approximately zero inches (the water's edge) and approximately two feet. Open water areas are shown on **Figure 3** for each site (**Appendix A**). Specific recorded values are provided for each impoundment on the attached data forms.

Penguin and Flashlight were approximately 90 percent inundated, with average depths of one to two feet and a range of depths from zero to six+ feet. Deepest areas were located in the center of the impoundments, which were as yet unvegetated.

Pintail was approximately 40 percent inundated, with an average depth of one to two feet and a range of depths from zero to about three feet. Albatross was approximately 90 percent inundated, with an average depth of one to two feet and a range of depths from zero to about four feet. Deepest areas were located in the center of the impoundments. A thin, scattered wetland fringe occurs around impoundment perimeters, but no wetland vegetation was observed within the wetted basin of either site. Surface water may be of sufficient duration to kill upland plants, but of insufficient duration to support hydrophytes every year or throughout a given growing season. Consequently, these areas were classified as potential "problem areas" (seasonal wetlands) for purposes of delineation. Water was extremely turbid at these sites, which could be indicative of an upstream erosion problem, recent cattle use, or chemical or other problems.

The excavated portion of Puffin was 100 percent inundated, but supports no wetland plants. Excessive depths and steep slopes in the excavated area at the dike face likely contribute to this condition. Water needs to climb several feet from the bottom of the excavated area in order to back upstream (upgradient) as designed. Based on a lack of watermarks, driftlines, etc. upgradient of the excavated area, this has probably not occurred with any frequency, if at all, over the project life.

3.2 Vegetation

Vegetation species identified on the site are presented in **Table 1** and on the attached data form. Three wetland community types were identified and mapped on the mitigation area (**Figure 3**, **Appendix A**). These included Type 1: *Myriophyllum/Potamogeton*, Type 2: *Hordeum jubatum/Eleocharis*, and Type 4: *Hordeum jubatum/Agropyron*. Dominant species within each of these communities are listed on the attached data form (**Appendix B**).

Type 1 occurs in aquatic bed habitats at Penguin and Flashlight. Type 2 occurs in emergent habitats surrounding impoundments at Penguin, Flashlight, and Albatross. Type 4 occurs primarily around the impoundment perimeter at Pintail.



Table 1: 2001 Fourchette Creek Vegetation Species List

Species	Region 4 (North Plains) Wetland Indicator	Region 9 (Northwest) Wetland Indicator (included for reference only)	Penguin	Pintail	Flashlight	Albatross	Puffin
Agropyron dasystachyum	FAC			X			
Agropyron repens	FAC	FACU		X			
Agropyron smithii			X				X
Alisma plantago-aquatica	OBL	OBL			X		
Artemisia frigida			X	X	X		X
Artemisia tridentata			X		X	X	X
Beckmannia syzigachne	OBL	OBL	X				
Bouteloua gracilis							X
Chrysothamnus nauseosus					X		
Cirsium arvense	FACU	FAC-	X	X	X		
Distichlis spicata	FACW	FAC+		X	X		
Echinochloa crusgalli	FACW	FACW		X			
Eleocharis acicularis	OBL	OBL	X		X		
Eleocharis palustris	OBL	OBL	X	X	X	X	
Elodea canadensis	OBL	OBL	х				
Erodium cicutarium				х	X		X
Grindelia squarrosa			X	X	X	X	X
Gutierrezia sarothrae			Х				X
Helianthus annuus	FACU	FACU+	Х	Х			
Hordeum jubatum	FAC+	FAC-	X	X	X	X	
Koeleria pyramidata					X		
Marsilea vestita	OBL	OBL				X	
Myriophyllum spicatum	OBL	OBL	х		X		
Nasturtium officinale	OBL	OBL			X		
Opuntia sp.					X		Х
Polygonum lapathifolium	OBL	FACW	х		Х		
Polygonum sp. (upland)	?	?		х	х	х	
Potamogeton foliosus	OBL	OBL	х		х		
Puccinellia sp.	?	?	х		х		
Sagittaria cuneata	OBL	OBL	X	1	X		
Salix exigua	FACW+	OBL				х	
Schizachyrium scoparium			х		1		
Scirpus acutus	OBL	OBL			х		
Scirpus maritimus	NI	OBL			х		
Xanthium strumarium	FAC	FAC	х		X	Х	Х

Upland communities (Type 3) are dominated by upland grasslands and shrub-steppe habitats. Common species include big sage (*Artemisia tridentata*), fringed sage (*Artemisia frigida*), curlycup gumweed (*Grindelia squarrosa*), broom snakeweed (*Gutierrezia sarothrae*), prickly pear cactus (*Opuntia sp.*), rubber rabbitbrush (*Chrysothamnus nauseosus*), blue gramma (*Bouteloua gracilis*), quackgrass (*Agropyron repens*), prairie junegrass (*Koeleria pyramidata*), and western wheatgrass (*Agropyron smithii*).

No vegetation transects were required or conducted at these impoundments.

3.3 Soils

A published soil survey does not exist for Phillips County. However, soils have been mapped for the Penguin (Bascovey clay) and Albatross (Sunburst clay) sites. Generally, soils at all of the impoundments consist of poorly drained clays.



Soils sampled in wetland areas at Penguin were consistently comprised of clays with a matrix color of 10YR4/2 and distinct, abundant mottles in the range of 10YR5/8, indicating a fluctuating water table. All were saturated within 12" of the surface.

Soils at Flashlight were comprised of clays with a matrix color of 2.5Y4/2 to 10YR4/3 and often contained faint mottle's at 2.5Y5/6. These soils were saturated to the surface throughout the site. Because the soils support dominant vegetation species that have an indicator status of OBL or FACW and the wetland/upland border is abrupt, hydric soils are assumed to be present under application of the 1987 delineation manual (Environmental Laboratory 1987).

Soils at both Pintail and Albatross were comprised of clays with a matrix color of 10YR4/2 and faint to distinct mottles at 10YR5/6 to 10YR5/8. These soils were saturated to within 12 inches of the surface at both sites. Soils adjacent to the impoundment at Puffin were saturated within 12 inches of the surface, and were comprised of clays with a matrix color of 10YR4/1 and faint mottles at 10YR4/6. These soils at Puffin, however, supported no wetland vegetation.

3.4 Wetland Delineation

Delineated wetland boundaries are illustrated for each site on **Figure 3** (**Appendix A**). Completed wetland delineation forms are included in **Appendix B**. Soils, vegetation, and hydrology are discussed in preceding sections. Delineation results are as follows:

Penguin: 0 wetland acres pre-existing

0.93 wetland acre created (emergent, aquatic bed)

0.28 acre open water

Flashlight: 0 wetland acres pre-existing

1.09 wetland acres created (emergent, aquatic bed)

0.28 acre open water

Pintail: 0 wetland acres pre-existing

0.48 wetland acre created (emergent) 0.98 acre open water (at max pool)

Albatross: 0 wetland acres pre-existing

0.06 wetland acre created (emergent)

0.82 acre open water

Puffin: 0 wetland acres pre-existing

0 wetland acres created 0.33 acre open water

Inclusive of open water areas, approximately 5.25 acres of aquatic habitat have been created on the Fourchette Creek mitigation site to date.



3.5 Wildlife

Wildlife species, or evidence of wildlife, observed on the site during 2001 monitoring efforts are listed in **Table 2**. Specific evidence observed, as well as activity codes pertaining to birds, are provided on the completed monitoring form in **Appendix B**. One mammal, two amphibian, two reptile, and four bird species were noted using portions of the mitigation site during the August 2001 visit. Greatest use appeared to occur at Penguin and Flashlight reservoirs, which both support large frog populations. Penguin also supports several painted turtles (*Chrysemys picta*). Very few avian species were observed in the project area, which may have been a function of season (post-nesting), weather (hot, dry), time of day, or a combination. However, it should be noted that few bird signs (tracks, scat, etc.) were observed at any of the impoundments. The degree of seasonal use that these impoundments receive likely varies from year to year in proportion to water availability, and is largely unknown at this time.

Of special interest were numerous observations of northern leopard frogs (*Rana pipiens*) at Penguin and Flashlight reservoirs. Leopard frogs are considered "species of special concern" by the Montana Natural Heritage Program (MNHP) due largely to their apparent extirpation from the portion of their historic distribution west of the Continental Divide. This species has been assigned a rank of S3 east of the Divide by the MNHP. Due to the 100's of leopard frogs observed at Penguin and Flashlight reservoirs and obvious breeding habitat, these sites were classified as a Category II wetlands (using the 1999 MDT Wetland Assessment Method) based on sensitive species habitat.

3.6 Macroinvertebrates

Macroinvertebrate sampling results are provided in **Appendix B** and summarized below.

Puffin and Flashlight: There were very few organisms present in the samples from these sites. It is not possible to positively state whether this is due to poor habitat or water quality conditions, or to inadequate sampling effort. However, given extreme turbidity and lack of vegetation at Puffin, the lack of organisms is likely due to poor habitat and water quality conditions at this site.

Penguin: The bioassessment method suggests poor biotic condition at this site. The midge fauna is dominated by hemoglobin-bearing taxa, suggesting anoxic conditions in the substrates. Causes for this could include warm water temperatures and/or nutrient-rich water. However, overall taxa richness is relatively high, so the analysis may have overestimated impairment in this case. At least 3 Odonate taxa and 2 mayfly taxa were present, which are signs of good water quality and habitat availability. The biotic index value was right on the scoring threshold.

Albatross: There were only 62 organisms present in the sample taken at this site, probably too few for valid bioassessment. Whether this depauperate assemblage reflects actual conditions, or whether it is an artifact of sampling methods is not clear from the data. However, given extreme turbidity and lack of aquatic vegetation at Albatross, the lack of organisms is likely due to poor habitat and water quality conditions at this site.

Pintail: Macroinvertebrates were not sampled at Pintail Reservoir.



Table 2: Fish and Wildlife Species Observed on the Fourchette Creek Mitigation Complex during 2001

FISH

Unidentified Minnow Species (Hybognathus sp.)* - Flashlight

AMPHIBIANS

Western Chorus Frog (*Pseudacris triseriata*) - Albatross

Northern Leopard Frog (Rana pipiens) – Penguin, Flashlight, Pintail

REPTILES

Painted Turtle (*Chrysemys picta*) - Penguin Plains Garter Snake (*Thamnophis radix*) – Flashlight

BIRDS

Eastern Kingbird (*Tyrannus tyrannus*) – All except Puffin Northern Harrier (*Circus cyaneus*) - Flashlight

Killdeer (Charadrius vociferous) – All except Puffin

Spotted Sandpiper (Actitis macularia) – All except Puffin

MAMMALS

Elk (Cervus elaphus)* - Puffin

* Observed by MDT biologist (Urban pers. comm.); not observed during formal 2001 monitoring activities.

3.7 Functional Assessment

Completed functional assessment forms are presented in **Appendix B**. Functional assessment results are summarized in **Table 3**. Penguin and Flashlight rated as Category II wetlands, primarily due to high sensitive species habitat (northern leopard frog) ratings (see discussion under **Section 3.5**). These sites would have achieved higher scores, but for the high disturbance associated with grazing. Each of these sites provides habitat for a variety of wildlife species, particularly amphibians. Penguin and Flashlight both support emergent and aquatic bed communities, and, based on MDT observations (Urban pers. comm.), Flashlight provides a degree of fish habitat. Wildlife habitat, surface water storage, sediment/nutrient/toxicant removal, shoreline stabilization, and food chain support are prominent functions at these sites.

Pintail and Albatross rated as Category IV wetlands. This was primarily due to low vegetative diversity, high disturbance (grazing), and low acreage of actual wetlands present within these assessment areas. Surface water storage is a prominent function at these sites. It should be noted that sediment/nutrient/toxicant removal received a low rating due to the extreme turbidity (impairment) and lack of wetland vegetation at these sites.

A wetland functional assessment was not conducted at Puffin due to the absence of wetlands at this site. According to MDT (Urban pers. comm.) the site is periodically used as an elk wallow.

Based on functional assessment results (**Table 3**), approximately 20.32 functional units have been gained thus far at the Fourchette Creek mitigation site.



Table 3: Summary of 2001 Wetland Function/Value Ratings and Functional Points ¹ at the Fourchette Creek Mitigation Project

Function and Value Parameters From the 1999	Wetland Sites						
MDT Montana Wetland Assessment Method	Penguin Reservoir	Flashlight Reservoir	Pintail Reservoir	Albatross Reservoir	Puffin Reservoir		
Listed/Proposed T&E Species Habitat	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	NA (no wetlands)		
MNHP Species Habitat	High (1.0)	High (1.0)	Low (0.2)	Low (0.1)	NA (no wetlands)		
General Wildlife Habitat	High (0.8)	High (0.8)	Low (0.3)	Low (0.3)	NA (no wetlands)		
General Fish/Aquatic Habitat	NA	Mod (0.5)	NA	NA	NA (no wetlands)		
Flood Attenuation	Low (0.2)	Low (0.2)	Low (0.2)	Low (0.2)	NA (no wetlands)		
Short and Long Term Surface Water Storage	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)	NA (no wetlands)		
Sediment, Nutrient, Toxicant Removal	Mod (0.5)	Mod (0.5)	Low (0.3)	Low (0.3)	NA (no wetlands)		
Sediment/Shoreline Stabilization	Mod (0.6)	Mod (0.6)	Low (0.2)	Low (0.2)	NA (no wetlands)		
Production Export/Food Chain Support	Mod (0.7)	Mod (0.7)	Low (0.3)	Low (0.3)	NA (no wetlands)		
Groundwater Discharge/ Recharge	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)	NA (no wetlands)		
Uniqueness	Low (0.2)	Low (0.2)	Low (0.2)	Low (0.2)	NA (no wetlands)		
Recreation/Education Potential	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)	NA (no wetlands)		
Actual Points/Possible Points	5.1 / 11	5.6 / 12	2.8 / 11	2.7 / 11	NA (no wetlands)		
% of Possible Score Achieved	46%	47%	25%	25%	NA (no wetlands)		
Overall Category	II	II	IV	IV	NA (no wetlands)		
Total Acreage of Assessed Aquatic Habitats within Easement	1.21 ac	1.37 ac	1.46 ac	0.88 ac	0.33 ac (OW only)		
Functional Units (acreage x actual points)	6.17 fu	7.67 fu	4.10 fu	2.38 fu	NA (no wetlands)		
Net Acreage Gain	1.21 ac	1.37 ac	1.46 ac	0.88 ac	0.33 ac (OW only)		
Net Functional Unit Gain	6.17 fu	7.67 fu	4.10 fu	2.38 fu	NA (no wetlands)		
Total Functional Unit "Gain"	20.32 Total Functional Un	its	1	1	1		

¹ See completed MDT functional assessment forms in Appendix B for further detail.



3.8 Photographs

Representative photographs taken from photo-points are provided in **Appendix C**.

3.9 Maintenance Needs/Recommendations

All dikes were in good condition during the mid-season visit.

Puffin Reservoir has developed no wetlands, presumably due to the depth of excavation and steep gradient of side slopes. It is our recommendation that MDT/BLM re-visit design of this site, which could involve filling in a portion of the pit excavated along the dike face and minor upstream excavation. This may allow water to back further upgradient, reduce water depths & side slope gradients, and increase surface area of the reservoir. This would also likely result in a more undulating shoreline, as opposed to the largely rectangular shoreline that currently exists.

It may also benefit MDT to investigate water quality at Puffin, Pintail, and Albatross for conditions that would preclude aquatic plant growth. Limited planting may also benefit these three impoundments, although water availability and quality may limit success.

All sites were impacted by grazing, primarily through trampling. MDT/BLM may want to consider fencing these areas and providing water gaps to deeper areas in order to allow cattle access while confining associated impacts.

3.10 Current Credit Summary

Target performance criteria included provision of 10 to 20 percent emergent species cover within 5 years of construction. This appears to have been achieved at Penguin, Flashlight, and possibly Pintail reservoirs, but not at Albatross or Puffin.

Primary target wetland functions included wildlife use, enhanced biodiversity, water retention, silt retention, recreational opportunity, and erosion control. Highest quality wildlife habitat is provided at Penguin and Flashlight, as are biodiversity, silt retention, and erosion control. Other reservoirs provide silt retention, but in excessive quantities that impair them. A degree of erosion control is also provided at these sites, but is limited by scant vegetation. All sites provide water retention, and none of the sites were perceived to provide substantial recreational opportunities.

As the project stands, approximately 5.25 acres of aquatic habitats have been created, inclusive of all open water components. Approximately 3.12 acres of "wetlands" have been created, inclusive of minor open water components associated with Penguin and Flashlight reservoirs. Approximately 20.32 functional units have been created at the site to date. The maximum assignable credit at this site as of 2001, inclusive of all open water areas, is approximately 5.25 acres.



4.0 REFERENCES

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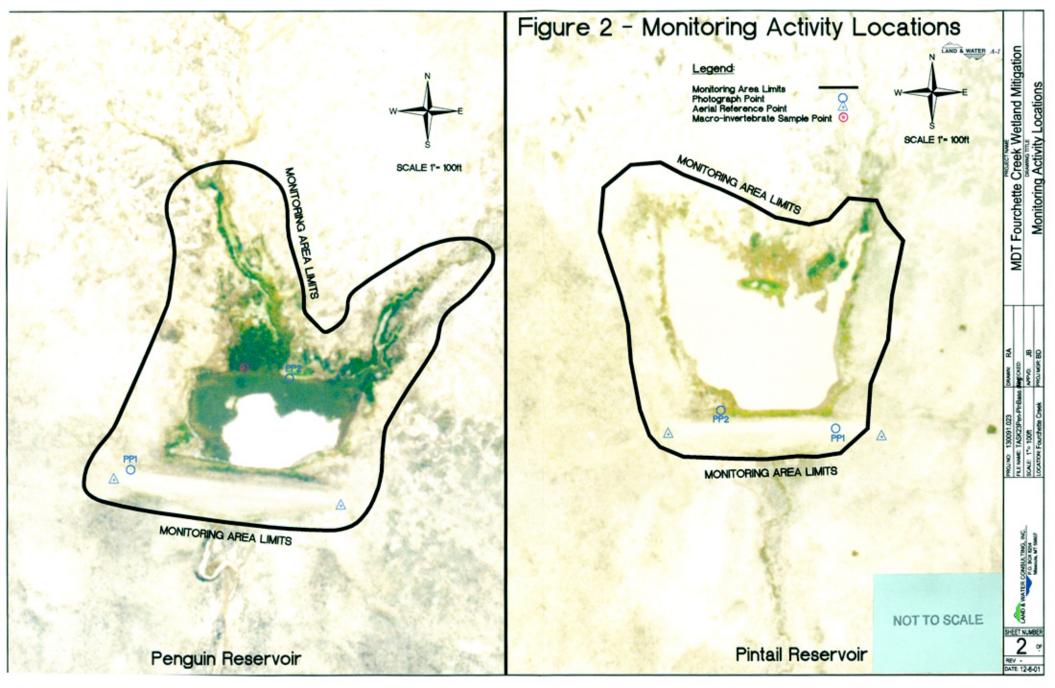


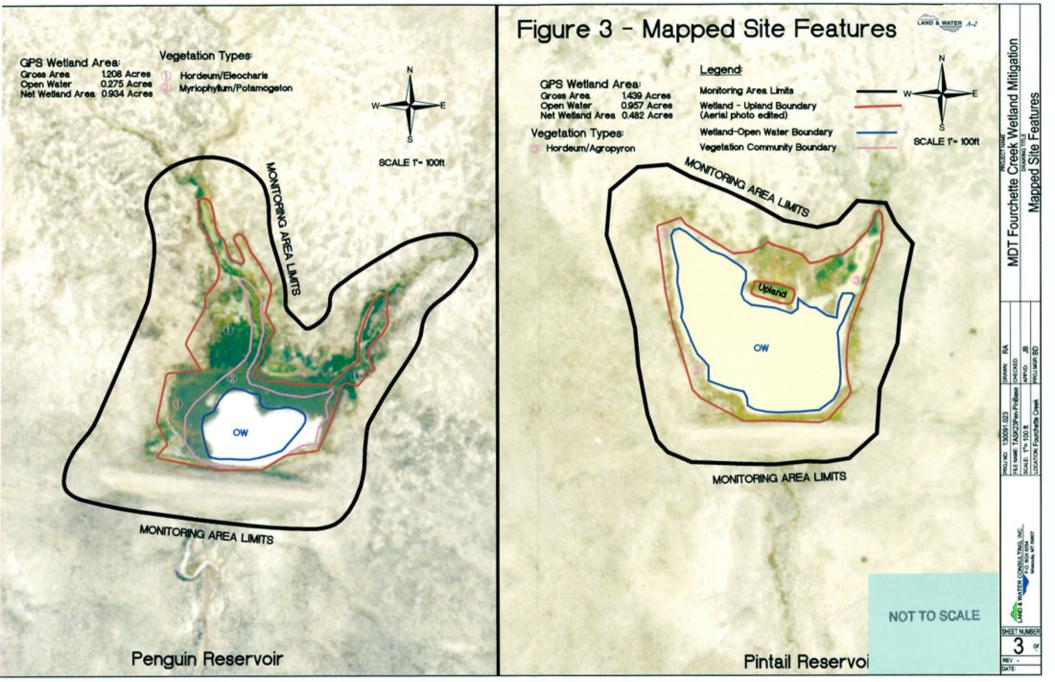
Appendix A

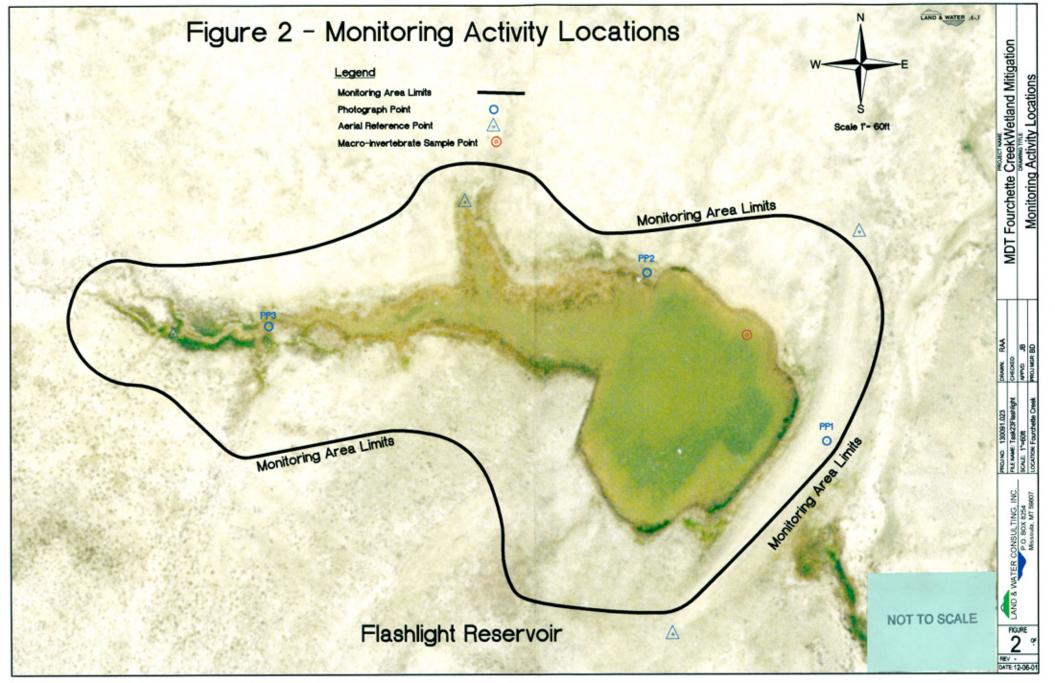
FIGURES 2 - 3

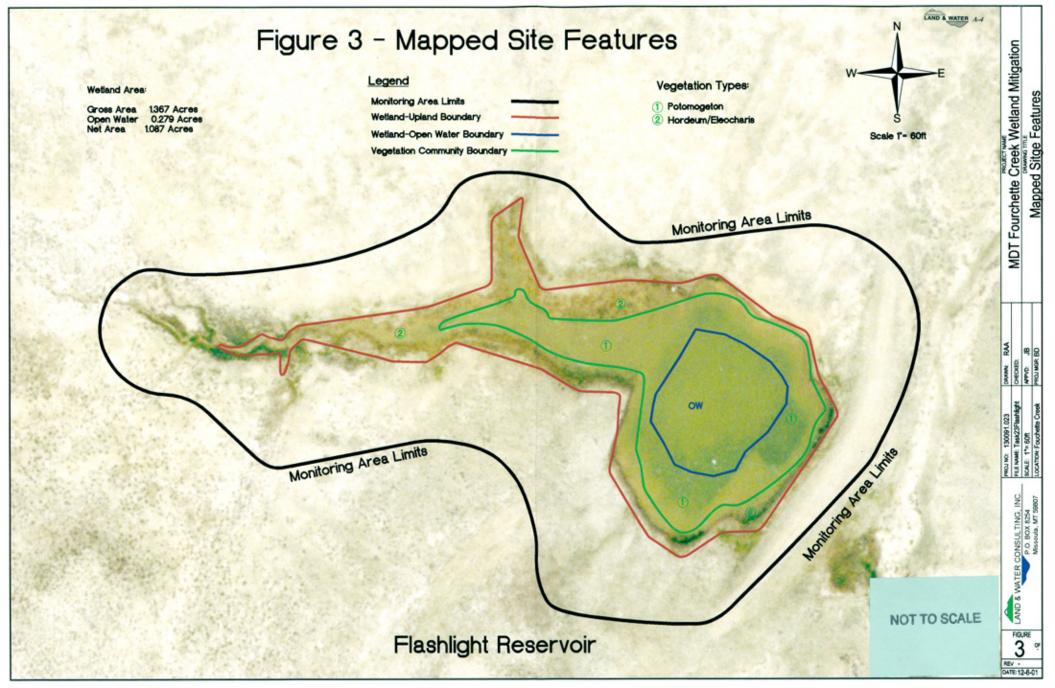
MDT Wetland Mitigation Monitoring Fourchette Creek Phillips County, Montana

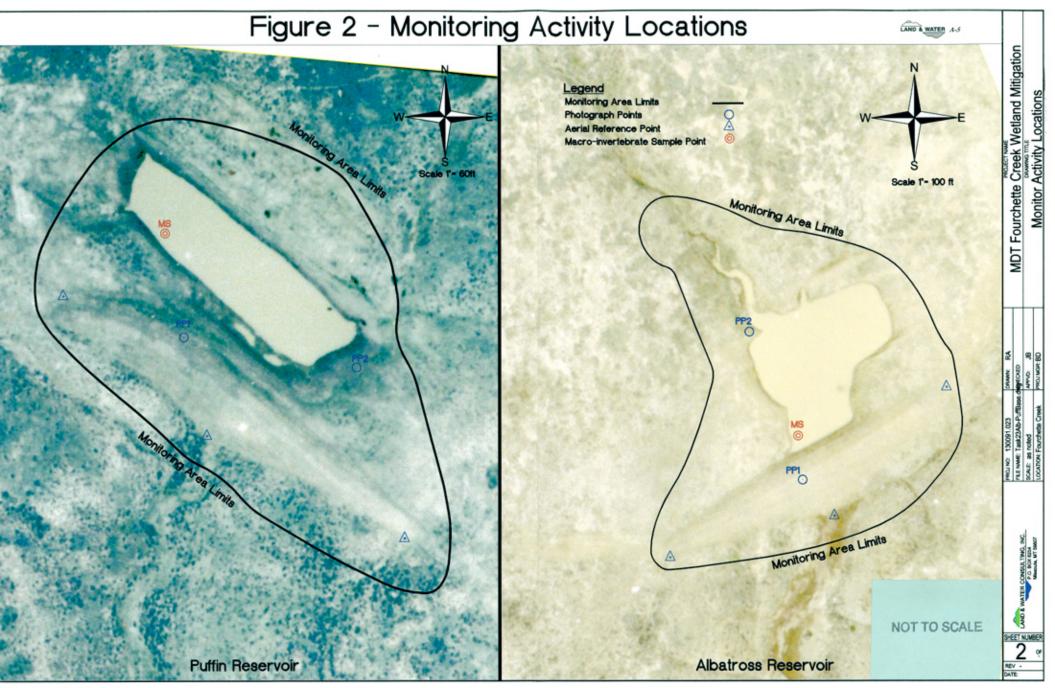


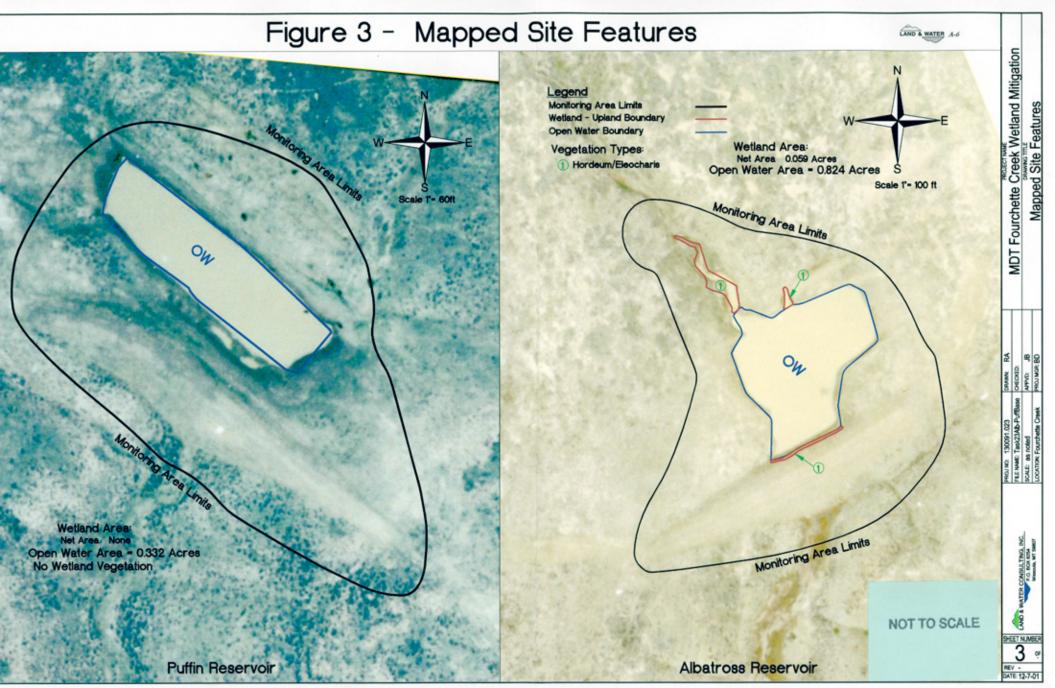












Appendix B

COMPLETED 2001 WETLAND MITIGATION SITE MONITORING FORM
COMPLETED 2001 BIRD SURVEY FORMS
COMPLETED 2001 WETLAND DELINEATION FORMS
COMPLETED 2001 FIELD AND FULL FUNCTIONAL
ASSESSMENT FORMS
MACROINVERTEBRATE DATA

MDT Wetland Mitigation Monitoring Fourchette Creek Phillips County, Montana



DRAFT - MDT WETLAND MITIGATION SITE MONITORING FORM

Projec	t Name: FOUL	Chette Cree	Project Num			sment Date: 08/.	<u> 30/01</u>			
Location: Plotail Reservoir MDT District: Glendive Milepost:										
Legal description: Tand R205 Section 19 Time of Day: 12:30 pm										
Weather Conditions: Hot, dry, calm Person(s) conducting the assessment: 5B, MT										
Initial	Evaluation Date	e: <u>X/30/</u> 0	Visit #:	Monitor	ing year: /	(2001)				
Size o	f evalusaiton are	ea: acre	es Land use su	rrounding wetla	and: <u>Kange</u>	10md				
+ Pint	ail x									
	HYDROLOGY									
	ce Water	/								
Inund	ation: Present_	√ Absent	Average de	pths: /-2 ft Ra	ange of depths:	U-3 ft				
	sment area unde			.1.						
Depth	at emergent veg	getation-open v	vater boundary:	<u>< tt</u>		1				
If asse	essment area is r	not inundated a	re the soils satu	rated w/in 12"	of surface: Yes	V No				
Other	evidence of hyd	irology on site	(drift lines, eros	sion, stained ve	getation etc.): _	Aerial photo +				
bish	Nater mark	5								
			,							
	ndwater		Abant							
	toring wells: Pr			-						
Reco	rd depth of wate			Donth	Well#	Depth				
	Well#	Depth	Well#	Depth	WCII #	Deptil				
				1						
	ional Activities									
	Map emergent v									
					k for evidence o	of past surface wate	Г			
elevat	ions (drift lines,	crosion, veget	ation staining e	tc)						
NA	GPS survey gro	oundwater mon	intoring wells lo	ecations if prese	ent					
				razed Six	1- 1/-1-	access to				
	MENTS/PROI		eavily gi	azea 5,7	e. Water	appeals No				
_5 ,t a	n long and	mun to E	11 yoland	plants, b	nt pot	lour enousy				
70	25+96/16h	O Weylond	plonis	CON ARCA	J. VERY	urbid Hotel.				
01	10	7/								
Ch	emical Pro	buns.								
-										

DRAFT - MDT WETLAND MITIGATION SITE MONITORING FORM

Projec	t Name: FOUL	CheHe Creek	Project Num	iber: <u>Task</u>	23 Asset	ssment Date: 08 / 30 / 0	1		
Locat	Location: Puttin Reservoil MDT District: Glendive Milepost:								
Legal	description: To	2N R29E Se	ction /O Tin	ne of Day: 4	30	5 0			
Weatl	ner Conditions:_	Hot, dry, co	lm Per	son(s) condúcti	ing the assessm	ent: 38, M7			
Initial	Evaluation Date	e: <u> </u>	Visit #:	Monitor	ring Year:_/_	ent: 5B, MT (2001)			
Size o	of evalusaiton are	ea: ∠ acre	s Land use su	rrounding wetla	and: <u>Kange</u>	land	_		
Pul	fin at				•				
, 0 .			HY	DROLOGY					
Surfa	Surface Water Inundation: Present Absent Average depths: 6 ft Range of depths: 0 - 8 ft								
Inund	ation: Present_	V Absent	Average de	pths: 6 ft Ra	ange of depths:	0 - 0 ft			
Asses	sment area unde	r inundation: <u>//</u>	<u>00 %</u>	0.011	what are				
Depth	at emergent veg	getation-open w	ater boundary:	() ft () " -	Warrs Bage				
It asso	essment area is n	iot inundated ar	e the soils satu	rated w/in 12" (of surface: Yes				
	evidence of hyd	rology on site (drift lines, eros	sion, stained ver	getation etc.): _	Water morks,			
all	Val photo						_		
Cuar	d.watau		,						
	indwater		Absent \						
	toring wells: Pr rd depth of wate		*****						
Reco				Donth	Well #	Donth			
	Weil #	Depth	Well#	Deptn	Well#	Deptn			
	L			L					
com St	Additional Activities Checklist: Vap emergent vegetation-open water boundary on air photo Observe extent of surface water during each site visit and look for evidence of past surface water elevations (drift lines, crosion, vegetation staining etc) MA GPS survey groundwater monitoring wells locations if present COMMENTS/PROBLEMS: Heavily grazed 5, te. No wellowd was. Site appears to have been greatly own-excavated. Water Stands in pit. It y turbed water. Water would need to be 10 ft + deep to Clear uplands to the north & flood As planned.								

COMPREHE	NSIVE VEGETATION	LIST	LAND & WATER B-6		
		Reservoirs			
	Species	Vegetation	Species	Vegetation	
		Community		Community	
	A	Number(s)	J.,	Number(s)	
HOR SUB	toxtail barken		1/6.		
XAN STR	cocklebur	Pen, Fla, Alb., P	u f		
ELE PAL	Creoping spikerush		ь.		
BEC SYZ	American Stone hors	Pen.			
POL LAP	Naterfreed	Hen, Fla			
ELE ACI	Spikerush,	Pen, Fla,			
MYR SPI	Water milfail	Pen, Fla			
ELO CAN	Comada Watermed	Pen.			
POT FOL	Heafy pondweed	Ren Fla,			
SAG CUN	porthin arronhead	Pen, Fla,			
CIRARV	Campda thistle	Pen Pin Fla.			
PUC Sp.	Alkaligrass	Pen, Fla	A		
ART TRI	B15 5996	Ren Fla Alb. Pu	f,		
GRI SQU	Curly- cup gumbued	Pen, Pin Fla, Alb.	Puf		
AGR SMI	LUSTERN LIKEATSMYS	Pen. Puf			
HEL ANN	Sunflower	Pen Pin	Δ		
ART FRI	tringed sage	Pon Pin Pla Put	<u> </u>		
GUT SAR	broom snakewed	Pen. Puf			
AND 500	little bluestem	Pen,			
ECH CRU	bornygedorass	Pin,			
DIS STR	//////// ** ** / / / / / / / / / / / /				
AGR DAC	thickspike Wheatgrass	Pin,			
AGR REP	quackarass	Pin,			
ERO CIL	redstern filares	Pin, Fla, Put			
POL SP. BOU GRA	Upland Polygonum blue grama	Pin, Fla, Alb.			
BOU GRA	blue grama	Pin, Alb, Puf Fla,			
ALI PLA AQU	Water plantain	Ha,			
SCI MAR	Saltmaken historish	1-1a			
SCI ACU	Hardstem bulrush	Fla Fla Fla			
VAS OFF KOL CRI	Watercross	Fla			
KOL CRI	prairie junescoss	Fla			
CHR NAU	rubber rabbitorush	Fla			
DPU 50.	prickly pear hairy galer fern Sandbar Hillow (1)	Fla Puf			
MAR VES	nairy Water tern	Alb			
SAL EXI	Sandba(Hillaw (1)	Alb			

COMMENTS/PROBLEMS: Large agreatic bed Com Flashlight, NO Wellands of Puffer. No agreety	manitos a) Pansain &

	VEGETATION CO	MMUNITIES CAND & WATE	ER B-7
Community No.:/_ Community Ti	tle (main species): M	4R / POT FOL (Pen	,Fla)
Dominant Species	% Cover	Dominant Species	% Cover
M40 401	750	Dominant Species	70 COVEI
MYR SPI POT FOL	750		
ELO CAN	11-20		
SAG CUN	1-5	1	
Jio Carv	/ 3		
COMMENTS/PROBLEMS:			
Community No.: 2 Community Ti	tle (main species): He	OR SUB/ELE (Pen., Fla	., Alb.)
Dominant Species	% Cover	Dominant Species	% Cover
HOR JUB	21-50		
ELE PAL	21-50		
ELE ACI	11-20		
XAN STR	1-5		
COMMENTS/PROBLEMS:			
		MONYS site + sike	
		יות וכר. יוורי ביוווט טייובי)
Community No.: 3 Community Tit	tle (main species):		
Community No.: 3 Community Tit	tle (main species):		
	% Cover	Dominant Species	·, fut) % Cover
Dominant Species	% Cover 21-50 80	Apland Chen. Piny Flag Alb.	, 9nf)
Dominant Species ART TRI HEL ANN	% Cover 21-50 80 4-10	Dominant Species	·, 9n+) % Cover
Dominant Species ART TRI HEL ANN GRI SQU	% Cover 21-50 80 4-10 11-20	Dominant Species	·, 9n+) % Cover
ART TRI HEL ANN	% Cover 21-50 80 4-10	Dominant Species	·, Int) (% Cove

LAND & WATER B-8 VEGETATION COMMUNITIES Community No.: 4 Community Title (main species): HOR SUB / Agrophon (Pin.) Dominant Species % Cover Dominant Species % Cover >50 750 21-50 COMMENTS/PROBLEMS: Community No.:____ Community Title (main species):_____ Dominant Species % Cover Dominant Species % Cover COMMENTS/PROBLEMS: _____ Community No.:____ Community Title (main species):_____ Dominant Species % Cover Dominant Species % Cover COMMENTS/PROBLEMS: Additional Activities Checklist:

Record and map vegetative communities on air photo

LAND & WATER B-9 MDT WETLAND MONITORING - VEGETATION TRANSECT Site: No Transect Regulard Date: Examiner: Transect # Approx. transect length: Compass Direction from Start (Upland): Vegetation type 1: Vegetation type 2: Length of transect in this type: feet Length of transect in this type: feet Total Vegetative Cover: Total Vegetative Cover: Vegetation type 3: Vegetation type 4: Length of transect in this type: feet Length of transect in this type: feet Total Vegetative Cover: Total Vegetative Cover:

MDT WETLAND MONITORING - VEGETATION TRANSECT (back of form)



Cover Estimate + = <1% 3 = 11-20% 1 = 1-5% 4 = 21-50% 2 = 6-10% 5 = >50%	Indicator Class: + = Obligate - = Facultative/Wet 0 = Facultative	Source: P = Planted V = Volunteer					
Percent of perimeter % deve	eloping wetland vegetation – exclud	ling dam/berm structures.					
Establish transects perpendicular to the shoreline (or saturated perimeter). The transect should begin in the upland area. Permanently mark this location with a standard metal fencepost. Extend the imaginary transect line towards the center of the wetland, ending at the 3 food depth (in open water), or at a point where water depths or saturation are maximized. Mark this location with another metal fencepost.							
Estimate cover within a 10 ft wide "belt" along the transect length. At a minimum, establish a transect at the windward and leeward sides of the wetland. Remember that the purpose of this sampling is to monitor, not inventory, representative portions of the wetland site.							
Notes: No Francect rego	nired						
1							

PLANTED WOODY VEGETATION SURVIVAL

A-	
LAND & WATER	B-11

Species	Number Originally Planted	Number Observed	Mortality Causes
NA			

		,	
COMMENTS/PROBLEMS:/\o	planted :	Species	
	,		
			1000 No. 2010 Maria

WETLAND DELINEATION	LAND & WATER B-12
At each site conduct the items on the checklist below: Delineate wetlands according to the 1987 Army Corps manual.	
Delineate wetland-upland boundary on the air photo	
Survey wetland-upland boundary with a resource grade GPS survey	
COMMENTS/PROBLEMS: Data forms attached	
COMMENTS/PROBLEMS: Jaka Forms attacked	
• And Visite with the Principle of the State (1994) (1994)	
FUNCTIONAL ASSESSMENT	07
Collect information to complete MDT Function and Values Assessment in the	e office.
Yess in a second of the second on	
Jeff is completing this section	
~	1 0 10
COMMENTS/PROBLEMS: Data forms attached - NO.	ne for Yuffin
05 no hydlonds exist there.	
MAINTENANCE	
Were man-made nesting structures installed at this site? YESNOX	
if yes, do they need to be repaired? YES NO_X	advitha mahlama 1/1
If yes, describe problems below and indicate if any actions were taken to rem	edy the problems. /UFF
Were man-made structures build or installed to impound water or control wat	er flow into or out of the wetland?
YES_NO If yes, are the structures working properly and in good working order? YES_ If no, describe the problems below.	
If yes, are the structures working properly and in good working order? YES	×_ NO
If no, describe the problems below. NH	
COMMENTS/PROBLEMS:	

WILDI IFF

				W	ILD	LIFE		ć	AND & WATER	B-13	
					BIR	DS					
Species	Number Observed	Nesting or Breeding Activity	Likely Breeding Resident	Likely Migrating		S	pecies	Number Observed	Nesting or Breeding Activity	Likely Breeding Resident	Likely Migrating
See Survey	Join									- Industrial	
0											
					_						
					_						
				ļ	\dashv						-
					-					-	
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					7						
					7						
							999				
					_						
			L	L					L		
Were man ma structures beir	de nesting s ng utilized?	tructures i Yes						How man repairs?	y? Yes	Are the	nesting
	Speci	ae				D HERI	PTILES	Indirect	indication	of uso	
	•	Λ	200+ 7	1000;		mber served	Tracks		Bur		Other
Northern	Leopord	Troa 1	Pen. Pin.	fla)							
	rtle		Pen.		/-	-3					
Plans ga			FIA)			1					
Western C	Charus from	9	ALL		3	}					
		/									

Additional Activities Checklist: Macroinvertebrate sampling (if required) Somple near NW corner of drainage inlet.
MDT brologist (Urban) observed elk
at Puttin in 2001. COMMENTS/PROBLEMS: _

LAND & WATER B-14

PHOTOGRAPHS

Using a camera with a 50 mm lenses and color film take photographs of the following permanent reference points listed in the checklist below. Record the direction of the photograph using a compass. (The first time at each site establish a permanent reference point by setting a ½ inch rebar or fencepost extending 2-3' above ground, survey the location with a resource grade GPS and mark the location on the air photo.) Checklist:

/	One photo for each of the 4 cardinal directions surrounding wetland
1	At least one photo showing upland use surrounding wetland - if more than one
/	upland use exists take additional photos
/	At least one photo showing buffer surrounding wetland
NA	One photo from each end of vegetation transect showing transect

Location	Photo Frame #	Photograph Description	Compass Reading
A	2	Pensum. PPI	90°
В	3	11 4	60°
С	4	11 11	36°
D	5	Pencyla, 892	344'
Е	6	11 11	275°
F	7	4 11	190°
G	4	IX II	108°
Н	19	Flashlant PPI	3260

COMMENTS/PROBLEMS: 10 Floring PP1, 290° (1) Floring PP1, 270° (2) Floring PP1, 250° (3) Floring PP2, 270° /
14) Floring PP2, 210° (5) Floring PP2, 120° (10) Floring PP3, 90° (13) Piong PP1, 15° (18) Piong PP1, 350° (10) Piong PP1, 315° (10) Piong PP1, 310° (10)

GPS SURVEYING Using a resource grade GPS survey the items on the checklist below. Collect at least 3 location points with the GPS unit set at 5 second recording rate. Record file numbers fore site in designated GPS field notebook
Checklist:
Jurisdictional wetland boundary 4-6 landmarks recognizable on the air photo Start and end points of vegetation transect(s) Photo reference points Groundwater monitoring well locations
COMMENTS/PROBLEMS:



BIRD SUMMARY TABLE

Site: Fourchette Creek Reserve

Scientific Name	Common Name	Total Density	Foraging	Nesting	Flyover	Breeding	Loafing
fen.	Kildeer		×				
Pen.	Kildeer Eosteen Kingbird Spotted sondgiger Northern Harrier		X				
Aen. Pen.	Southed sandalogs		X				
Fla	Modler Hickory		X				
	TOT THE HAITTE						
	-						
			- A. P. A. B.				
		-					
		-					
						-	
		-					
							300000
		-					
		L			L		

and the second of the second s	rcle Ac.): <1(1-5)>5	Brief D	escription: Fer	guin Lexe	VO(1					
HGM Class (CIRCLE)	Cowardin Class	Est. % of AA	Predominant Wat	er Regime (CIRCLE	The second secon	and the second of the second o				
dineral Soil Flats	Emergent	40	Perm Flood Int F	Exp Sem Perm Flood	Seas Flood Sat 7	Tem Flood Int Flood				
Organic Soil Flats Riverine (nonperennial)	Aquatic Bed	30	Perm Flood Int I	xp Sem Perm Flood	Seas Flood Sat 7	Tem Flood Int Flood				
Riverine (upper perennial)	Moss-Lichen		Perm Flood Int I	Exp Sem Perm Flood	Seas Flood Sat 7	Tem Flood Int Flood				
Riverine (lower perennial) Lacustrine Fringe	Scrub-Shrub		Perm Flood Int I	Exp Sem Perm Flood	Seas Flood Sat 7	Tem Flood Int Flood				
Depression (closed)	Forested		Perm Flood Int I	Exp Sem Perm Flood	Seas Flood Sat 7	Tem Flood Int Flood				
Depression (open, groundwater) Depression (open, surface)	Unconsolidated Bottom	30	Perm Flood Int I	Exp Sem Perm Flood	Seas Flood Sat	Tem Flood Int Flood				
water)	Other:		Perm Flood Int I	Exp Sem Perm Flood	Seas Flood Sat 1	Tem Flood Int Flood				
Organic Soil Flats	Total Estimated % Vegetated	70								
Longest duration of sur	rface water:			Surface Water Duration and other attributes (circle)						
Does AA contain surfac	c or subsurface outlet?	N	If outlet present, i	is it restricted (subsu	rface will always be "	yes")(Y N				
Longest duration of sur	rface water:			Surface Water Duration and other attributes (circle)						
at any wetlands within A	Α			Penn / Peren	Seas / Intermit	Temp / Ephem				
in at least 10% of AA (bo	oth wetlands and nonwetlands [deepw	ater, streambe	sd)	Perm / Peren	Seas / Intermit	Temp / Ephem				
Where fish are or historic	ally were present (circle NA) not ap	pplicable)		Perm / Peren	Seas / Intermit	Temp / Ephem				
% of wat	erbody containing cover objects			>25%	10-25%	<10%				
% bank o	or shore with riparian or wetland shrul	b or forested c	onununities	>75%	50-74%	<50%				
adjacent to rooted wetlan action (circle NA if not a	d vegetation along a defined watercom pplicable)	urse or shoreli	ne subject to wave	Perm / Peren	Seas / Intermit	Temp / Ephem				
% cover	of wetland bank or shore by sp. with b	oinding rootm	asses	>65%	35-64%	<35%				
rioou Aucilianon, 100 a	tland area subject to periodic floo of flooded wetland classified SS, I	ding (acres):		≥10 (2-10) ≥75 25-74	no, go to groundwater					
Estimated % of Evidence of groundwark HABITAT Habitat for Listed or Proparation of Commented Primary or critical in Secondary habitat (Incidental habitat) No usable habitat	ist species) D(S		on definitions contain	ed in instructions): D S MNI	нр: нр:Ы <u>аск-ии ки</u> нр:	1 51:11				

LAND & WATER B-17 Field Data Sheet for 1999 MDT Wetland Assessment Form Estimated AA Size (Circle Ac.): <1 (1-5)>5 **Brief Description:** HGM Class (CIRCLE) Cowardin Class Est. % Predominant Water Regime (CIRCLE) of AA Mineral Soil Flats 10 Emergent Perm Flood Seas Flood Sat Tem Flood Int Exp Sem Perm Flood Int Flood Organic Soil Flats Aquatic Bed Perm Flood Int Exp Sem Perm Flood Seas Flood Tem Flood Int Flood Riverine (nonperennial) Riverine (upper perennial) Moss-Lichen Perm Flood Int Exp Sem Perm Flood Seas Flood Tem Flood Int Flood Riverine (lower perennial) Scrub-Shrub Lacustrine Fringe Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood Depression (closed) Forested Perm Flood Int Exp Sem Perm Flood Seas Flood Tem Flood Int Flood Depression (open, groundwater) Unconsolidated Bottom 90 Perm Flood Int Exp Sem Perm Flood (Seas Flood) Int Flood Tem Flood Depression (open, surface water) Other: Perm Flood Int Exp Sem Perm Flood Seas Flood Tem Flood Int Flood Slope Organic Soil Flats Total Estimated % Vegetated w Low glozing DISTURBANCE is: High RELATIVE ABUNDANCE: rare com abun. Moderate HYDROLOGY: Max. acre-ft surf. water at wetlands in AA subject to inundation (<1) >5 (if no flooding/ponding, go to groundwater* section) If outlet present, is it restricted (subsurface will always be "yes") Y Does AA contain surface or subsurface outlet? N

Longton dur		Dallace fracer Daractolt and Other actificates (circle)					
at any wetland	ds within AA	Perm / Peren	Seas / Intermit	Temp / Ephem			
in at least 10%	6 of AA (both wetlands and nonwetlands (deepwater, streambed)	Perm / Peren	Seas / Intermit	Temp / Ephem			
Where fish are	e or historically were present (circle NA i not applicable)	Perm / Peren	Seas / Intermit	Temp / Ephem			
	% of waterbody containing cover objects	>25%	10-25%	<10%			
	% bank or shore with riparian or wetland shrub or forested communities	>75%	50-74%	<50%			
	oted wetland vegetation along a defined watercourse or shoreline subject to wave NA if not applicable)	Perm / Peren	Seas / Intermit	Temp / Ephem			
	% cover of wetland bank or shore by sp. with binding rootmasses	>65%	35-64%	35%			
Esti Evidence of HABITAT Habitat for List AA is Do Primary of Seconda Incidenta	imated wetland area subject to periodic flooding (acres): imated % of flooded wetland classified SS, FO or both: groundwater discharge or recharge? Y	d in instructions): D S MNHi D S MNHi D S MNHi	Dock-neeted	5 1 .1			
No usabl Wildlife obser Fish observati	vations? 2 /e pard frogs	D'S MNHI					
	nave potential to receive excess sediments, nutrients, or toxicants? Y ential to receive: low to moderate levels high levels	N From: COV	On TMDL List?	Y 60			
Does site cont	tain bog, fen, warm springs, >80 year-old forested wetland, or MNHP "S1" o	or "S2" plant associat	ion? Y	(B)			

Is AA a known recreation / education site?

Does AA offer strong potential for use as recreation / education site?

Brief Description: Estimated AA Size (Circle Ac.): <1(1-5 HGM Class (CIRCLE) Cowardin Class Est. % Predominant Water Regime (CIRCLE) of AA Mineral Soil Flats Emergent סני Perm Flood Int Exp Sem Perm Flood (Seas Flood Sat Tem Flood Int Flood Organic Soil Flats Aquatic Bed 50 Perm Flood Sem Perm Flood Int Exp(Seas Flood Sat Tem Flood Int Flood Riverine (nonperennial) Riverine (upper perennial) Moss-Lichen Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood Riverine (lower perennial) Scrub-Shrub Lacustrine Fringe Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood Depression (closed) Forested Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood Depression (open, groundwater) Unconsolidated Bottom ഗ Sem Perm Flood Perm Flood Int Exp (Seas Flood Int Flood Depression (open, surfac Sat Tem Flood Other: Int Exp Perm Flood Sem Perm Flood Seas Flood Int Flood Sat Tem Flood Organic Soil Flats Total Estimated % Vegetated Low grazho RELATIVE ABUNDANCE: rare (com) DISTURBANCE is: abun. High Moderate HYDROLOGY: Max. acre-ft surf. water at wetlands in AA subject to inundation: <1 (1-5) (if no flooding/ponding, go to groundwater* section) If outlet present, is it restricted (subsurface will always be "yes") \Y. Does AA contain surface or subsurface outlet? N Longest duration of surface water: Surface Water Duration and other attributes (circle) at any wetlands within AA Perm / Peren Seas / Intermit Temp / Ephem in at least 10% of AA (both wetlands and nonwetlands [deepwater, streambed...] Perm / Peren Seas / Intermit Temp / Ephem Perm / Peren Where fish are or historically were present (circle NA) of not applicable) Seas / Intermit Temp / Ephem % of waterbody containing cover objects >25% 10-25% <10% >75% 50-74% <50% % bank or shore with riparian or wetland shrub or forested communities Seas / Intermit adjacent to rooted wetland vegetation along a defined watercourse or shoreline subject to wave Perm / Peren Temp / Ephem action (circle NA if not applicable) % cover of wetland bank or shore by sp. with binding rootmasses >65% 35-64% <35% Flood Attenuation: Do any wetlands on site flood as a result of in-channel or overbank flow N (if no, go to groundwater* section below) Estimated wetland area subject to periodic flooding (acres): ≥10 2-10 25-74 Estimated % of flooded wetland classified SS, FO or both: ≥75 *Evidence of groundwater discharge or recharge? Y List: HABITAT Habitat for Listed or Proposed Threatened, Endangered, or Montana Natural Heritage Program S1, S2, or S3 Plants or Animals: AA is Documented (D) or Suspected (S) to contain (circle based on definitions contained in instructions): Primary or critical habitat (list species) D S T/E: D S MNHP Secondary habitat (list species) T/E D MNHP MNHP: black needed still per fale DS Incidental habitat (list species) D S MNHP No usable habitat Wildlife observations? Fish observations? OTHERS Do wetlands have potential to receive excess sediments, nutrients, or toxicants? On TMDL List? Potential to receive: low to moderate levels high levels Y Does site contain bog, fen, warm springs, >80 year-old forested wetland, or MNHP "S1" or "S2" plant association? List: Is AA a known recreation / education site? N

Site:

Field Data Sheet for 1999 MDT Watland Assessment Form

Does AA offer strong potential for use as recreation / education site?

Predominant Water Regime (CIRCLE) of AA Mineral Soil Flats KO Emergent Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood Organic Soil Flats Aquatic Bed Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood Riverine (nonperennial) Riverine (upper perennial) Moss-Lichen Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood Riverine (lower perennial) Scrub-Shrub Lacustrine Fringe Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood Depression (closed) Forested Perm Flood Int Exp Sem Perm Flood Seas Flood Int Flood Sat Tem Flood Depression (open, groundwater) Unconsolidated Bottom 90 Depression (open, surface water) Perm Flood Int Exp Sem Perm Floo Seas Flood Tem Flood Int Flood Other: Perm Flood Int Exp Sem Perm Flood Seas Flood Tem Flood Int Flood Slope Organic Soil Flats Total Estimated % Vegetated RELATIVE ABUNDANCE: rare (com) abun. DISTURBANCE is: High Moderate HYDROLOGY: Max. acre-ft surf. water at wetlands in AA subject to inundation: 1<1 >5 (if no flooding/ponding, go to groundwater* section) Does AA contain surface or subsurface outlet? N If outlet present, is it restricted (subsurface will always be "yes") Longest duration of surface water: Surface Water Duration and other attributes (circle) at any wetlands within AA Perm / Peren Seas / Intermit Temp / Ephem in at least 10% of AA (both wetlands and nonwetlands [deepwater, streambed...] Perm / Peren Seas / Intermit Temp / Ephem Where fish are or historically were present (circle NA not applicable) Perm / Peren Seas / Intermit Temp / Ephem % of waterbody containing cover objects >25% 10-25% <10% % bank or shore with riparian or wetland shrub or forested communities >75% 50-74% <50% adjacent to rooted wetland vegetation along a defined watercourse or shoreline subject to wave Perm / Peren Seas / Intermit Temp / Ephem action (circle NA if not applicable) % cover of wetland bank or shore by sp. with binding rootmasses 35-64% >65% <35% Flood Attenuation: Do any wetlands on site flood as a result of in-channel or overbank flow Y N (if no, go to group dwater* section below) Estimated wetland area subject to periodic flooding (acres): 2-10 Estimated % of flooded wetland classified SS, FO or both: ≥75 25-74 *Evidence of groundwater discharge or recharge? Y List: HABITAT Habitat for Listed or Proposed Threatened, Endangered, or Montana Natural Heritage Program S1, S2, or S3 Plants or Animals; AA is Documented (D) or Suspected (S) to contain (circle based on definitions contained in instructions); Primary or critical habitat (list species) D S T/E: D S MNHP: Secondary habitat (list species) T/E D,S MNHP: D(S) MNHP: blackrocked 51:44 Incidental habitat (list species) T/E MNHP: No usable habitat D Wildlife observations? Fish observations? OTHERS Do wetlands have potential to receive excess sediments, nutrients, or toxicants? From: 6 On TMDL List? N Potential to receive: low to moderate levels high levels Does site contain bog, fen, warm springs, >80 year-old forested wetland, or MNHP "S1" or "S2" plant association? Y List: Is AA a known recreation / education site? Does AA offer strong potential for use as recreation / education site?

Site: 7

Brief Description:

Est %

Field Data Sheet for 1999 MDT Wetland Assessment Form

Cowardin Class

Estimated AA Size (Circle Ac.): <1 (1-5)

HGM Class (CIRCLE)



Evaluation Date: Mo. 8	Day <u>30</u> Yr <u>. 01</u> 4. E	Evaluator(s):	SB/M7	5 , Wet	lands/Site	#10) Fengul	n les.	
Wetland Location(s): I. Leg	al: T22 Nors; R30	(Exw. s_19		;TN	or S; R			
						RE	SERVO	Ŕ
iii. Watershed: \(\int O \) Other Location Information	<u>40104</u> GP:	S Reference No.	(if applies): _	NA-				
a. Evaluating Agency:	y affected by MDT project pre-construction	t 9. Assessi	i size: (total a ment area: (A tions on deter	/_2_ A, tot., ac.,		ally estimated) sured, e.g. by GP:(visually estim(measured, e.	nated)	
Classification of Wetland	and Aquatic Habitats I	n AA (HGM acco	rding to Brinso	n, first col.; USFV	NS accordi	ng to Cowardin [19	979], remaini	ng cois.)
HGM Class	System	Subs	ystem		Class	Water Regime	Modifier	% of A
Dep (surf. Water) Palustrine				EM	SF	D.	40
11 11	Palustine	_			AB	SPP	D	30
h 11	lı .				UB	SPF	D	30
					1.0			
Estimated relative abunda (Circle one) Comments:	ance: (of similarly classif Unknown	ied sites within the Rare	same Major I	Montana Watersh Common	ed Basin, s	ee definitions) Abunda	nt	
General condition of AA:								
Regarding disturbanc Conditions wit		etermine [circle] a			fiacent to (s	within 500 feet of)	AA	
		Land managed in p natural state, is not	redominantly	Land not cultivated, grazed or hayed or :	but moderate	ly Land cultivated	or heavily graze	
		logged, or otherwise does not contain roa	converted;	or has been subject contains few roads	to minor clear		trological alterat	
occurs and is managed in predomin- zed, hayed, logged, or otherwise con		low disturbance		low disturbance		moderate di	sturbance	
ds or occupied buildings. not cultivated, but moderately grazer ged; or has been subject to relatively		moderate distur	bance	moderate distur	bance	high disturb	ance	
cement, or hydrological alteration; co cultivated or heavily grazed or logge estantial fill placement, grading, clear	d; subject to relatively	high disturbano	e	high disturband	9	high disturb	ance	
h road or building density		/1		4 4 1 2	.1.			
Comments: (types of dist	turbance, intensity, seaso an, & Introduced specie	on, etc.): //// // os (including the	not domes	ticated, feral): (I	ist)	401/		
iii. Provide prief descrip	live summary of AA and lond, Penguin	Reserve	and use/habit	at: Impoun	dment	Surrounder	d by	
,								
	ed on number of "Coward	din" <i>vegetated</i> cla	sses present	do not include un	vegetated of	classes], see #10 a	above)	
3. Structural Diversity: (base				ed classes (or		ed classes (or	above) ≤ 1 vegetate	d class
3. Structural Diversity: (base # of "Cowardin" vegetated cla Rating (circle)			≥ 3 vegetat	ed classes (or	2 vegetat	ed classes (or led)		d class

Pen LAND & WATER B-21

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

 Habitat for Federally AA is Documented (D) Primary or critical habitat (list Incidental habitat (list No usable habitat 	or Sus tat (list speci	spected speci- es)	1 (S) to	cont:	reatene ain (circ S S S S S S S S	d or E	based o	on de	Plants	or Ani	mais: ined in i	nstru	ctions)	:						
II. Rating (use the conclusthis function)	sions fr	om i ab	oove and	d the	matrix l	below t	o arrive	at [c	ircle] th	e funci	ional po	ints :	and rati	ng (H =	high, l	M = r	noderat	e, or L	= low] f	or
Highest Habitat Level		doc./pr	rimary		sus/prin	nary	doc./	seco	ondary	sus	/second	dary	doc	./incide	ntal	sus.	/incider	ntal	None	9
Functional Points and Rat	ing	1 (H)			.9 (H)		.8 (N	1)		.7 (1	Vf)		.5 (L)		.3 (L	.)		0 (L)	
Sources for documented us	e (e.g.	observ	rations,	reco	rds, etc)):										7				
14B. Habitat for plant or a I. AA is Documented (D) Primary or critical habit Secondary habitat (list Incidental habitat (list No usable habitat II. Rating (use the conclust)	or Sus tat (list t speci specie	spected speci es) s)	d (S) to les)	cont	ein (circ	le one	Desed	on de	efinitions and 5	conta	Fran	ristn F/	ictions)	: 9n1					= low] f	for
this function) Highest Habitat Level		doc./p	riman.	Т	sus/prin	nan/	doc	leeri	ondary	CHE	/second	darv	doc	./incide	ntal	SUS	/incider	ntal	None	e
	1)			iai y			a local y			July 1	1					1001		
Functional Points and Rat Sources for documented us			htions.		.8 (H)	١٠ /	.7 (N		15 0) 6 (l	<u>/)</u>	_	.2(L)		.1 (1	-)		0 (L)	
Substantial (based on any observations of abundant wildlife sign presence of extremely interviews with local bi Moderate (based on any of observations of scatter common occurrence of adequate adjacent uplainterviews with local bi	ant wild such as limiting ologists of the for red wild of wildlif and foo ologists	dife #'s s scat, g habita s with k diowing dife gro e sign ad soun s with k	or high tracks, at featur knowled [check oups or such as ces knowled	spe nest es no ge of]): indiv s sca	structuot availa f the AA iduals o t, tracks	res, ga ble in t r relati s, nest	ame trail the surr vely few structur	s, et ound spe res, (c. ling area cies dur game tra	ing pe ails, etc	fev littl sp into	v or r e to r arse erview	no wildli no wildl adjacer ws with	fe obse ife sign it uplan local bi	rvation d food iologist	s dur sour s with	h knowl	k use p	the A	
 ii. Wildlife habitat features (L) rating. Structural divers of their percent composition seasonal/intermittent; T/E = 	ity is front of the	om #1: AA (se	3. For (e #10).	class Abb	cover to	o be co	onsidere surface	ed ev	enly dis er durati	tribute ons an	d, veget e as foll definițio	ated ows:	classes P/P = p Ubese	must l	oe with ent/per	in 20	% of ea	ch othe	r in ten	ms
Structural diversity (see #13)				Hig	gh						Q	Mode	rate					Low	1	
Class cover distribution		Eve	n			Unev	en			Eve	<u> </u>			Unew	en			Eve	n	
(all vegetated classes) Duration of surface	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	(S/I)	T/E	Α	P/P	S/I	T/E	A	P/P	S/I	T/E	Α
water in ≥ 10% of AA										$\stackrel{\smile}{=}$						١		 		
Low disturbance at AA (see #12i)	E	E	E	н	E	E	н	н	E	н	н	М	E	н	М	M	E	Н	М	М
Moderate disturbance	н	н	н	н	Н	н	Н	М	н	н	м	М	н	М	М	L	н	M	L	L
at AA (see #12i) High disturbance at AA (see #12i)	М	м	м	L	м	М	L	L	м	\odot	L	L	М	L	L	L	L	L	L	L
iii. Rating (use the conclu			and ii ab	ove	and the	matrix	below to	o arri	ive at [ci	rcle] th	e functi	onal	points a	and rati	ng [E =	exc	eptional	, H = hi	gh, M =	=

Wildlife habitat features rating (ii) Evidence of wildlife use (i) Low High Moderate Exceptional .7 (M) .9 (H) ,8 (H) Substantial 1 (E) .3 (L) 5 (M) Moderate .9 (H) .7 (M) .2 (L) .1 (L) Minimal .4 (M) .6 (M)

comments: Many Leopard troys, painted turkes

LAND & WATER B-2

Pen

14D. General Fish/Aquatic Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not or was not historically used by fish due to tack of habitat, excessive gradient, etc., circle NA bere and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective [such as fish use within an irrigation canal], then Habitat Quality [i below] should be marked as "Low", applied accordingly in ii below, and noted in the comments.)

Habitat Quality (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), moderate (M), or low (L) quality rating.

Duration of surface water in AA	Perm	Permanent / Perennial Seasonal / Intermittent					Temporary / Ephemeral			
Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation, etc.	>25%	10-25%	<10%	>25%	10–25%	<10%	>25%	10-25%	<10%	
Shading - >75% of streambank or shoreline within AA contains riparian or wetland scrub-shrub or forested communities	E	Ē	Н	н	Н	М	М	М	М	
Shading – 50 to 75% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities	Н	н	М	М	М	М	М	L	L	
Shading - < 50% of streambank or shoreline within AA contains rip, or wetland scrub-shrub or forested communities	Н	М	М	M	L	L	L	L	L	

ii. Modified Habitat Quality (Circle the appropriate response to the following question. If answer is Y, then reduce rating in I above by one level [E = H, H = M, M = L, L = L]). Is fish use of the AA precluded or significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or equation life support?

Y

N

Modified habitat quality rating = (circle)

E

H

M

L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low) for this function)

Types of fish known or	Modified Habitat Quality (ii)										
Types of fish known or suspected within AA	Exceptional	High	Moderate	Low							
Native game fish	1 (E)	.9 (H)	.7 (M)	.5 (M)							
Introduced game fish	.9 (H)	.8 (H)	.6 (M)	.4 (M)							
Non-game fish	.7 (M)	.6 (M)	.5 (M)	.3 (L)							
No fish	.5 (M)	.3 (L)	.2 (L)	.1 (L)							

Comments:

14E. Flood Attenuation: (applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this

function)									
Estimated wetland area in AA subject to periodic flooding		≥ 10 acres			:10, >2 acres	S		<2 acres	
% of flooded wetland classified as forested, scrub/shrub, or both	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1(H)	.9(H)	.6(M)	.8(H)	.7(H)	.5(M)	.4(M)	.3(L) (.2(L)
AA contains unrestricted outlet	.9(H)	.8(H)	.5(M)	.7(H)	.6(M)	.4(M)	.3(L)	.2(L)	-:(L)

ii. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA (circle)? Y Comments:



14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, circle NA here and proceed with the evaluation.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this
function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see
instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	1	>5 acre feel		C.	, >1 acre fe	×*)	:	1 acre foot	
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	SID	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1(H)	.9(H)	.8(H)	.8(H)	C.6(M)	.5(M)	.4(M)	.3(L)	.2(L)
Wetlands in AA flood or pond < 5 out of 10 years	.9(H)	.8(H)	.7(M)	.7(M)	.5(M)	.4(M)	3(L)	.2(L)	.1(L)

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Sediment, nutrient, and toxicant input levels within AA	deliver low or comp substantial	to moderate le counds such the y impaired. Mit is or toxicants,	wels of sedime nat other functi nor sedimental	tion, sources of	nutrients, or toxic use with poter nutrients, or co substantially im	r "probable cause	es" related to eives or surrou th levels of sec that other fund dimentation, s	sediment, inding land diments, tions are ources of
% cover of wetland vegetation in AA	≥ 7	70%	<	70%	(≥70	%)	< 7	0%
Evidence of flooding or ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1 (H) .8 (H) .7 (M) .5 (M)			(.5 (M))	.4 (M)	.3 (L)	.2 (L)	
AA contains unrestricted outlet	.9 (H)	.7 (M)	.6 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)	.1 (L)

14H Sediment/Shoreline Stabilization: (applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made di ige, or on the shoreline of a standing water body which is subject to wave action.) If does not apply, circle NA here and proceed to next function)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L

% Cover of wetland streambank or	Duratio	n of surface water edjacent to rooted ve-	getation
shoreline by species with deep, binding rootmasses	permanent / perennial	seasonal / intermittent	Temporary / ephemeral
> 65%	1 (H)	.9 (H)	.7 (M)
2 65% 35-64% < 35%	.7 (M)	(.6 (M))	.5 (M)
< 35%	.3 (L)	.2 (L)	.1 (L)

14l. Production Export/Food Chain Support: Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent;

T/F /A= temporary/ephymography or should four instructions for further than the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent;

A	T	Vegeta	ted comp	onent >	5 acres		7	Veceta	ted comp	oneni T	5 acres)		Vegeta	sted com	ponent <	1 acre	
B	н	ah		erate		ow	Н	igh	UMod	rate)	L	ÓW	Hi	gh	Mode	erate	Lo	w
C	Yes	No	Yes	No	Yes	No	Yes	No	CY65	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	9H	.9H	.8H	.8H	.7M	.9H	.8H	H8.	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L
S/I	9H	H8.	.8H	.7M	.7M	.6M	.8H	.7M	710	.6M	.6M	.5M	.6M	.5M	.5M	.3L	.3L	.2L
TIEI	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L
A					1	l .	1											

Comments:

Comments:

 Groundwater Discharge/Recharge: (Check the indicators in it.) Discharge Indicators Springs are known or observed 	& ii below that apply to the AA) II. Recharge Indicators Permeable substrate present without underlying impeding layer
Vegetation growing during dormant season/drought Wetland occurs at the toe of a natural slope Seeps are present at the wetland edge AA permanently flooded during drought periods Wetland contains an outlet, but no inlet Other	Wetland contains inlet but no outletOther
III. Rating: Use the information from i and ii above and the table belo	w to arrive at [circle] the functional points and rating (H = high, L = low) for this function.
III. Rating: Use the information from i and ii above and the table belo Criteria	w to arrive at [circle] the functional points and rating [H = high, L = low] for this function. Functional Points and Rating
	Functional Points and Rating
Criteria	Functional Points and Rating

14K. Uniqueness:

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this

TURCUOT.										
Replacement potential	AA contains	fen, bog, warm	springs or	AA does r	not contain pre	eviously cited	AA does not contain previously			
	mature (>80	mature (>80 yr-old) forested wetland or			rare types and structural diversity			cited rare types or associations		
	plant association listed as "S1" by the				(#13) is high or contains plant			and structural diversity (#13) is		
	MNHP			association listed as "S2" by the MNHP			low-moderate			
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant	
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)	
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)	
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	(2(L))	.1 (L)	

Comments:

14L. Recreation/Education Potential: I. Is the AA a known rec/ed. site: (circle) YLN of yes, rate as [circle] High [1] and go to ii; if no go to iii) Consumptive rec.;_ Non-consumptive rec.; II. Check categories that apply to the AA: ___ Educational/scientific study;

III. Based on the location, diversity, size, and other site attributes, is there strong potential for recied. use? X.N. (If yes, go to ii, then proceed to iv, if no, then rate as [circle] Low [0.1])

Ownership	Disturbance at AA (#12)						
	low	moderate	high				
public ownership	1 (H)	.5 (M)	.2(L)				
private ownership	.7 (M)	.3 (L)	(1 (L)				

Comments:

FUNCTION & VALUE SUMMARY & OVERALL RATING

Her)

Function & Value Variables	Rating	Actual Functional Points	Possible Function al Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	Vow	0.3	1	
B. MT Natural Heritage Program Species Habitat	H16H	1.0	1	
C. General Wildlife Habitat	HIGH	0.8	1	
D. General Fish/Aquatic Habitat	NA	_	_	
E. Flood Attenuation	LOW	0.2	1	
F. Short and Long Term Surface Water Storage	MOD	0.6	1	
G. Sediment/Nutrient/Toxicant Removal	MOD	9.5	1	
H. Sediment/Shoreline Stabilization	MOD	0.6		
I. Production Export/Food Chain Support	MOD.	0.7	1	
J. Groundwater Discharge/Recharge	LOW	0.1	1	
K. Uniqueness	Low	0.2	1	
L. Recreation/Education Potential	LOW	0.1	1	
Totals:		5.1.	[]]	

46%

OVERALL ANALYSIS AREA (AA) RATING: (Circle appropriate category based on the criteria outlined below)

$\overline{}$		
	m	IV

- VAUSTORY
Category I Wetland: (Must satisfy one of the following criteria; if does not meet criteria, go to Category II) Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or Score of 1 functional point for Uniqueness; or Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or Total actual functional points > 80% (round to nearest whole #) of total possible functional points.
Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; if not satisfied, go to Category IV) Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or Score of .9 or 1 functional point for General Wildlife Habitat; or Score of .9 or 1 functional point for General Fish/Aquatic Habitat; or "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or Score of .9 functional point for Uniqueness; or Total Actual Functional Points > 65% (round to nearest whole #) of total possible functional points.
Category III Wetland: (Criteria for Categories I, II or IV not satisfied)
Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy criteria go to Category III) "Low" rating for Uniqueness; and "Low" rating for Production Export/Food Chain Support; and Total actual functional points < 30% (round to nearest whole #) of total possible functional points

I. Project Name: <u>Four</u> C	hette Creek	TIANG AS	ses 2. Proj	ject#:	-orm (revis	eu 5/25	_ Control #:_		
3. Evaluation Date: Mo. 2	Day 30 Yr. 01 4. E	evaluator(s):	3	B/MT	5 . Weti	ands/Site #(s) Floshi	14+ E	eser 10.
5. Wetland Location(s): I. I ii. Approx. Stationing	egal: T22 (Nor S; R29 or Mileposts:	€ rw;s <u>c</u>	24		;TNo	or S; R		SERVOI	
ili. Watershed: <u>LQ</u> Other Location Inform	040104 GPS nation:	S Reference	No. (if	applies): _	NA			30,001	
2. Mitigation wetlar 3 Mitigation wetlar 4. Other	on: tially affected by MDT project ds; pre-construction nds; post-construction	t 9. Ass see ins	essme	ent area: (A	A, tot., ac., nining AA)	(measu	y estimated) ired, e.g. by GP (visually estin (measured, e	nated) .g. by GPS [i	f applies])
10, Classification of Wetla HGM Class	System		Subsys		n, first col.; USFV		to Cowardin [1 Water Regime	979], remaini Modifier	ng cols.) % of AA
									1//-
Dep (surt. Wal			_			EM	<u>5+</u>	1 D	40
. 11 11	Palustine					718	SPF_	D	50
μ η	11		_			UB	SPF_	D	10
						1 1			
), Artificial (A) HGM Classes: River Indance: (of similarly classif Unknown							ant	
12. General condition of A		letermine feire	dol oor	orooristo ree	onea)				
I. Regarding disturb	ance: (use matrix below to d within AA	T CITC	aej app	Predomir	ant conditions ac	fjacent to (wit	hin 500 feet of)	AA	
		Land manage natural state; i logged, or othe does not conta	is not gr erwise c	azed, hayed, converted;	Land not cultivated, grazed or hayed or a or has been subject contains few roads	selectively logger to minor clearing	d; subject to sub	d or heavily graz stantial fill place drological alteral nsity.	ment, grading
AA occurs and is managed in predo grazed, hayed, logged, or otherwise		low disturb	ance		low disturbance)	moderate o	listurbance	
cads or occupied buildings. AA not cultivated, but moderately g ogged; or has been subject to relat	ively minor clearing, fill	moderate d	disturba	ance	moderate distur	bance	high distur	bance	
placement, or hydrological alteration AA cultivated or heavily grazed or less than the substantial fill placement, grading, high road or building density.	ogged; subject to relatively	high disturt	bance		high disturband	e)	high distur	bance	
	disturbance, intensity, seaso allen, & Introduced specie	on, etc.): //ces (including	AVV those	9/42 e not domes	ing impaction (in the control of the	ist)	401/		
iii. Provide prief des Indeveloped Pan	criptive summary of AA an	nd surroundi	ng lan	nd use/habit	^{at:} Impoun	dment	Surrounde	ed by	
13. Structural Diversity: (based on number of "Coward	din" vegetate	d clas	ses present	do not include un	vegetated cla	isses], see #10	above)	
	d classes present in AA (see				ed classes (or				ed class
Rating (circle)	`	Low							

Comments:



SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally I. AA is Documented (D) or Su	specte	d (S) to	cont	ain (circ							nstn	uctions)	:						
Primary or critical hab Secondary habitat (Ilst Incidental habitat (Ilst No usable habitat	st speci	es)	ies)			$\overline{\mathcal{P}}$	ipia	+	don	_					=					
II. Rating (use the concluthis function)	isions fr	rom i at	ove an	d the	matrix	below	to arrive	at [d	circle] th	e funci	tional po	ints	and rati	ng [H	= high, l	v1 = 1	moderat	e, or L	= low] f	or
Highest Habitat Level		doc./p	rimary	\perp	sus/prir	nary	doc.	sec	ondary	sus	./second	dary	doc	./incide	ental	sus	/incider	ntal	None	3_
Functional Points and Ru	ating	1 (H)			.9 (H)		.8 (N	1)		.7 (1	M)		.5 (L)	- ₹	3(1	1)		0 (L)	
Sources for documented u			vations,):				-						-		12.00		
AA is Documented (I Primary or critical hab Secondary habitat (Ilst Incidental habitat (Ilst No usable habitat Rating (use the concluthis function)	oitat (lis: st speci t specie	t speci les) es)	ies)	Ĺ	D)S DS DS DS	10 to	ack-r	A V	12 ap	liit,	per	eg	m	fall	_	M = 1	moderat	e, or L	= low] f	or
Highest Habitat Level		d00.7p	qmary		sus/prir	nary	doc.	sec	ondary	sus	/second	dary	doc	./incide	ental	sus	./incider	ntal	None	e
Functional Points and Ru	atina (1 (H))	1	.8 (H)		.7 (N	1)		.6 (M)		1.20	L)	1	.1 (L) /		0 (L)	
Sources foo documented u	se (e.g.	ousen	vations,	reco		.):	1		005	1	1		0650		∇					
Substantial (based on an observations of abundant wildlife sign presence of extremel interviews with local to be substantial wildlife sign presence of extremel interviews with local to be substantial wildlife habitat feature (L) rating. Structural diversessonal/intermittent; T/E	dant wike a such a y limiting piologisti of the for ered wike of wildli pland for piologisti ers (work risity is fin of the	dlife #'s s scat, g habits s with I ollowing dlife gra fe sign xd sour s with I sing fro rom #1 AA (se	s or high tracks, at featur knowled g [check oups or such as ces knowled m top to 3. For cee #10).	nesones nesone	ecies divit structurot availate fithe AA viduals of the AA tom, circle scover I breviation	or relations, nest	ame traithe sum ively few structu propriate onsident surface	speres,	tc. Jing are ding are	ring pe ails, etc s in m tribute ions an	fevilitti sp. inti	v or le to arse ervie ds ds	no wildli no wildli adjacer ws with e at excel classes : P/P =	ife obsi ife sign t uplai local t eptiona s must permar	ervation Ind food piologist It (E), his be with nent/pen	s du sour s wit gh (H in 20	h knowl H), mode 1% of ea	ik use pedge of erate (Pich other	f the AA	w
Structural diversity (see	- tempo	al y/eq.	ne ne a		gh	USETIL [300 P 131	Juce	C IS IG	IUIUIG			erate	terris	-/			Lov	v	
#13) Class cover distribution		Eve	n			Uneven Even Uneven						æn			Eve	n				
(all vegetated classes) Duration of surface	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I)	T/E	Α	P/P	S/I	T/E	A	P/P	S/I	T/E	A
water in ≥ 10% of AA	FIF	3/1	1/6	1^	FIF	3/1	1/2	^	-/-		''-	_^						J.,	,,,	Ľ
Low disturbance at AA	E	E	E	н	E	E	Н	н	E	н	н	М	E	н	М	M	E	Н	М	M
(see #12i)		н	н	н	н	н	н	м	н	н	M	М	н	M	м	-	н	м	L	t
Moderate disturbance at AA (see #12i)	н	"	_ n	"	"	"	"	M	"	"	- m	""	"			-				L
High disturbance at AA (see #12i)	М	М	М	L	м	М	-	L	М	Ѿ	L	L	М	L	L	L	L	L	L	L

ill. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M =

Evidence of wildlife use (i)	Wildlife habitet features rating (i)									
	Exceptional	High	(Moderate)	Low						
Substantial	1 (E)	.9 (H)	(.8 (H))	.7 (M)						
Moderate	.9 (H)	.7 (M)	.5 (M)	.3 (L)						
Minimal	.6 (M)	.4 (M)	.2 (L)	.1 (L)						

comments: 1000's of Leggard frogs present.

14D. General Fish/Aquatic Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, etc., circle NA here and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective [such as fish use within an irrigation canal], then Habitat Quality [i below] should be marked as "Low", applied accordingly in ii below, and noted ih

Habitat Quality (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), mederate (M), or low (L) quality rating.

Duration of surface water in AA	Perm	anent / Pere		Seas	onal / Interm	nitteot		porary / Ephe	
Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floeting-leaved vegetation, etc.	>25%	10–25%	<10%	25%	10-25%	<10%	>25%	10–25%	<10%
Shading - >75% of streambank or shoreline within AA contains riparian or wetland scrub-shrub or forested communities	E	E	Н	Ŧ	Н	М	М	М	М
Shading – 50 to 75% of streambank or shoreline within AA contains rip, or wetland scrub-shrub or forested communities	Н	H	М	۶ (М	М	М	L	L
Shading - < 50% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities	Н	М	М	\odot	L	L	L	L	L

ii. Modified Habitat Quality (Circle the appropriate response to the following question. If answer is Y, then reduce rating in I above by one level [E = H, H = M, M = L, L = L]). Is fish use of the AA precluded or significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the MDEQ list of vaterbodies in need of TMDL development with listed "Probable Impaired Oses" including cold or warm water fishery or equation life support?

N Modified habitat quality rating = (circle) E H M L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low) for this function)

Types of fish known or	Modified Habitat Quality (ii)									
Types of fish known or suspected within AA	Exceptional	High	Moderate	Low						
Native game fish	1 (E)	.9 (H)	.7 (M)	.5 (M)						
Introduced game fish	.9 (H)	.8 (H)	_6.(M)	.4 (M)						
(Non-game fish)	.7 (M)	.6 (M)	(.5(M))	.3 (L)						
No fish	.5 (M)	.3 (L)	344	.1 (L)						

comments: None obs., but MOT says fish were observed (Urban)

14E. Flood Attenuation: (applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function.)

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this

function) ≥ 10 acres 2 acres <10, >2 acres Estimated wetland area in AA subject to periodic flooding 25-75% 75% 25-75% -25% 25-75% % of flooded wetland classified as forested, scrub/shrub, or both 75% <25% 7(H).5(M) 4(M) AA contains no outlet or restricted outlet 1(H) 9(H) .6(M) .8(H) 9(H) 8(H) 5(M) .6(M) 4(M) AA contains unrestricted outlet

Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA (circle)? Y N Comments:

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, circle NA here and proceed with the evaluation.)

Rating (working from top to bottom, use the matrix below to arrive at (circle) the functional points and rating [H = high, M = moderate, or L = low] for this function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].

	instructions for further definitions of these terms.)	aj. <i>)</i>												
1	Estimated maximum acre feet of water contained in wetlands				Ü	5, >1 acre fe	eζ	≤1 acre foot						
- [within the AA that are subject to periodic flooding or ponding													
ĺ	Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/D	T/E	P/P	S/I	T/E				
1	Wetlands in AA flood or pond ≥ 5 out of 10 years	1(H)	.9(H)	.8(H)	.8(H)	C6(MD	.5(M)	.4(M)	.3(L)	.2(L)				
	Wetlands in AA flood or pond < 5 out of 10 years	.9(H)	.8(H)	.7(M)	.7(M)	.5(M)	.4(M)	.3(L)	.2(L)	.1(L)				

Comments:

the comments.)

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Sediment, nutrient, and toxicant input levels within AA	deliver low or comp substantial	to moderate le counds such the y impaired. Mir ts or toxicants,	wels of sedimentation of sedimentation of sedimentations.	tion, sources of		r *probable caus cants or AA rece ntial to deliver hig empounds such spaired. Major se	ses" related to eives or surrough levels of se that other fun- edimentation, s	sediment, unding land diments, ctions are sources of
% cover of wetland vegetation in AA	>	70%	.<	70%	≥ 70	%)	< 7	'0%
Evidence of flooding or ponding in AA	Yes	No	Yes	No	AR)	No	Yes	No
AA contains no or restricted outlet	1 (H)	.8 (H)	.7 (M)	.5 (M)	C.5 (M)	.4 (M)	.3 (L)	.2 (L)
AA contains unrestricted outlet	.9 (H)	.7 (M)	.6 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)	.1 (L)

Flo

.1 (L)

N/A (Unknown)

14H Sediment/Shoreline Stabilization: (applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If does not apply, circle NA here and proceed to next function)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L

% Cover of wetland streambank or	Duration of surface water adjacent to rooted vegetation									
shoreline by species with deep, binding rootmasses	permanent / perennial	seasonal / intermittent	Temporary / ephemeral							
	1 (H)	.9 (H)	.7 (M)							
≥ 65% 35-64%	.7 (M)	(B(M))	.5 (M)							
< 35%	.3 (L)	.2 (L)	.1 (L)							

Comments:

14I. Production Export/Food Chain Support:

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent;

A	F	Vegeta	ted come	conent >	5 acres			(Vegetated component 1-5 acres)					Vegetated component <1 acre					
В	Hi	ah	Mod	erate	L	ow	Н	gh	Mad	ecate	1	w	Hi	gh	Mod	erate	L	OW .
C	Yes	No	Yes	No	Yes	No	Yes	No	(Yes)	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	111	.9H	.9H	.8H	.8H	.7M	.9H	.8H	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L
S/I	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	C7M	.6M	.6M	.5M	.6M	.5M	.5M	.3L	.3L	.2L
TIEL	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L
Ι Δ				1								1 !				1		

Comments:

140. Of College and College an	ocion trick apply to the ray
Discharge Indicators	II. Recharge Indicators
Springs are known or observed Vegetation growing during dormant season/drought Wetland occurs at the toe of a natural slope Seeps are present at the wetland edge Ah permanently flooded during drought periods Wetland contains an outlet, but no inlet Other	Permeable substrate present without underlying impeding layer Wetland contains inlet but no outlet Other
iii. Rating: Use the information from i and ii above and the table below t	o arrive at [circle] the functional points and rating [H = high, L = low] for this function.
Criteria	Functional Points and Rating
AA is known Discharge/Recharge area or one or more indicators of D/R	present 1 (H)

C	ommen!	ba:

14K. Uniqueness:

No Discharge/Recharge indicators present

Rating (working from top to bottom, use the matrix below to arrive at (circle) the functional points and rating [H = high, M = moderate, or L = low] for this function.

Replacement potential	mature (>80	fen, bog, warm yr-oid) forested ation listed as " MNHP	wetland or	rare types (#13) is	and structu		AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate			
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	Common	abundant	
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)	
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	.3(1)	.2 (L)	
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	الاق	.1 (L)	

Comments:

14L. Recreation/Education Potential: i. Is the AA a known rec./ed. site: (circle) Y N (if yes, rate as [circle] High [1] and go to ii; if no go to iii)
II. Check categories that apply to the AA: ___Educational/scientific study; ___Consumptive rec.; ___Non-consumptive rec.; ___Other

iii. Based on the location, diversity, size, and other site attributes, is there strong potential for rec./ed. use? Y (N

(If yes, go to ii, then proceed to iv, if no, then rate as [circle] Low [0.1])

Available Discharge/Recharge information inadequate to rate AA D/R potential

141. Groundwater Discharge/Recharge: (Check the indicators in i.8 ii helow that sook to the AA)

Iv. Rating (use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Ownership	Disturbance at AA (#12)							
	low	moderate	high					
public ownership	1 (H)	.5 (M)	20)					
private ownership	.7 (M)	.3 (L)	(.f (L))					

LAND & WATER B-29

FUNCTION & VALUE SUMMARY & OVERALL RATING

Fla

Function & Value Variables	Rating	Actual Functional Points	Possible Function al Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	LOW	0.3	1	
B. MT Natural Heritage Program Species Habitat	H16H	1.0	1	
C. General Wildlife Habitat	High	0.8	1	
D. General Fish/Aquatic Habitat	MOD	0.5	1	
E. Flood Attenuation	Low	0,2	1	
F. Short and Long Term Surface Water Storage	MOD	0.6	1	
G. Sediment/Nutrient/Toxicant Removal	MOD	0,5	1	
H. Sediment/Shoreline Stabilization	MOD	0.6	1	
Production Export/Food Chain Support	MOD	0.7	1	
J. Groundwater Discharge/Recharge	LOW	0.1	1	
K. Uniqueness	LOW	0.2	1	
L. Recreation/Education Potential	LOW	0.1	1	
Totals:		5.6	12	

UT %

OVERALL ANALYSIS AREA (AA) RATING: (Circle appropriate category based on the criteria outlined below)

		1
0	- 11	
	۳.	/

) III

IV

	<u> </u>	
Scc Scc	y I Wetland: (Must satisfy one of the following criteria; if does not meet criteria, go to Category II) core of 1 functional point for Listed/Proposed Threatened or Endangered Species; or core of 1 functional point for Uniqueness; or core of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or otal actual functional points > 80% (round to nearest whole #) of total possible functional points.	
Category Sc Sc Sc High	y II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; if not satisfied IV) icore of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or icore of .9 or 1 functional point for General Wildlife Habitat; or icore of .9 or 1 functional point for General Fish/Aquatic Habitat; or High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or icore of .9 functional point for Uniqueness; or icore of .9 functional Points > 65% (round to nearest whole #) of total possible functional points.	ed, go to
Category	y III Wetland: (Criteria for Categories I, II or IV not satisfied)	
Category criteria go "Lo	ry IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does to Category III) Low" rating for Uniqueness; and Low" rating for Production Export/Food Chain Support; and otal actual functional points < 30% (round to nearest whole #) of total possible functional points	es not satisfy



Project Name: Fourchet	Montana We	tland A	Asses _ 2. Pro	ssment l	Form (revis	ed 5/25	5/1999) Control #:_		
Evaluation Date: Mo. 8 Day	30 yr. 01 4. E	valuator(»:_≾	6/M7	5 . Wet	ands/Site #	(s) Pinta	1 20	Wall
Wetland Location(s): I. Legal:	T22 (Nors; R30	€ w;	s 19		:TNc	r S; R	_	_	
	eposis.						RE	SERVO	2
III. Watershed: <u>၂ 0 0 년</u> Other Location Information:	<u>0104</u> GPS	Referen	ce No. (i	f applies): _	NA		,		
b. Purpose of Evaluation: 1. Wetlands potentially af 2. Mitigation wetlands; pre 3. Mitigation wetlands; pre 4. Other	fected by MDT project e-construction ost-construction	9, A 500	lssossm instructi	size: (total ad nont area: (A lons on deten	A, tot., ac., mining AA)	(meas	ily estimated) sured, e.g. by GP (visually estin (measured, e	nated) .g. by GPS [i	if applies])
10. Classification of Wetland an HGM Class	d Aquatic Habitats I	n AA (HGI	M accord		n, first col.; USFV	VS accordin	g to Cowardin [1 Water Regime	979], remaini Modifier	ing cols.) % of AA
									+
Dep (surt. Waler)	Palustrine		_			EM	SF_	D	10
11' 11	Palustine		_			UB	SF_	\mathcal{D}_{-}	190
									-
	-							1	+
			-			-		+	+
Estimated relative abundance (Circle one) Uni Comments:	ce: (of similarly classif known	ied sites w Ra		same Major I	Montana Watersh Common	ed Basin, se	e definitions) Abunda	int	
2. General condition of AA:			-11-1						
Regarding disturbance: (Conditions within		etermine (circle] ap	propriate res Predomi	ponse) nant conditions ac	facent to (w	ithin 500 feet of)	AA	
				edominantly razed, hayed,	Land not cultivated, grazed or hayed or s			d or heavily graz stantial fill place	
		logged, or	otherwise		or has been subject contains few roads	to minor clearly		drological alteral	
A occurs and is managed in predominantly azed, hayed, logged, or otherwise convert		low dist			low disturbance		moderate o		
eds or occupied buildings. A not cultivated, but moderately grazed or gged; or has been subject to relatively min	nor clearing, fill	moderat	te disturb	pance	moderate distur	bance	high distur	bance	
lacement, or hydrological alteration; contain A cultivated or heavily grazed or logged; substantial fill placement, grading. Clearing.	ubject to relatively	high dis	turbance)	high disturband		high distur	bance	
Comments: (types of disturbing density. Comments: (types of disturbing the prominent weedy, allen, iii. Provide priof description developed frange for						/ -/ 2	ARV Surround	d by	
3. Structural Diversity: (based	on number of "Coward	din" veget	ated clas	ses present	(do not include un	vegetated c	lasses), see #10	above)	
# of "Cowardin" vegetated class				≥ 3 vegeta	ted classes (or s forested)	1	ed classes (or	≤ 1 vegetate	ed class
Rating (circle)				High		Moderate		Low	
Comments:									



SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

Pin

(tow

.3(L)

Moderate

.8 (H)

.5 (M)

.2 (L)

14A. Habitat for Federally I. AA is Documented (D Primary or critical habi Secondary habitat (Ilst Incidental habitat (Ilst No usable habitat) or Sus itat (list t speci	spected speci es)	(S) to	cont	reatened ain (circi D S D S D S	d or E	based o	ored on de	Plants of sinitions	conta	mals: ined in i	nstn	actions)	:						
II. Rating (use the conclu- this function)	sions fr	om i at	ove and	the	matrix t	below t	o arrive	at [c	circle) the	e func	ional po	ints	and rati	ng [H =	high, I	M = r	moderat	e, or L	= low] fo	or
Highest Habitat Level		doc./pi	imary	1	sus/prin	nary	doc./	seco	ondary	sus	./second	dary	doc	./incide	ental	suo	Ancider	ntal	None	_
Functional Points and Ra	ting	1 (H)			.9 (H)		.8 (N	f)		.7 (M)		.5 (L)	10	.3 (l	.)		0 (L)	
Sources for documented us	se (e.g.	observ	ations, r	reco	rds, etc)):										E				
14B. Habitat for plant or a I. AA is Documented (D Primary or critical hab Secondary habitat (IIs Incidental habitat (list No usable habitat	animals) or Sus itat (list st specie	s rated spected t speci ies)	\$1, \$2, 1 (S) to es)	or cont	S3 by the ain (circons S S S S S S S S S S S S S S S S S S S	he Mo de one	based	on de	efinitions	OPC	ined in i	J.	(04				i		= loul (~
II. Rating (use the concluthis function)	sions tr	om i at	ove and	une	matrix	Delow I	to arrive	atio	circiej to	e tunc	iionai po	жиз	ano rau	ng (n	- ngn, i	WI - I	100era		- IOW] II	
Highest Habitat Level		doc./p	rimary	1	sus/prin	nary	doc.	/sec	ondary	sus	./secon	dary	doc	./incide	ental	sus	/incide	ntal	None	3_
Functional Points and Ra	ting	1 (H)			.8 (H)		.7 (N	۸)		.6 (M)		(.2(u)		.1 (0 (L)	
Sources for documented us	se le.g.	obsen	ations,	reco	rds, etc	3	\			. /			0							
I. Evidence of overall will Substantial (based on any observations of abund abundant wildlife sign presence of extremely interviews with local by the common occurrence of adequate adjacent up interviews with local by the common occurrence of adequate adjacent up interviews with local by the common occurrence of adequate adjacent up	y of the dant wild such a limiting iologist: of the formed wild of wild iologist:	following the state of the stat	ng [check or high tracks, at feature mowled [check bups or such as ces knowled	ck]): spe nest es n ge o]): indiv s sca	ocies divi structu ot availa f the AA iduals o at, tracks f the AA	ersity (res, ga able in t or relati s, nest	during are trait the surre wely few structure	any plis, et ound	period) ic. ding area poies dur game tra	ing pe	Low (fev littl sp int ak period	base v or i le to arse ervie	ed on ar no wildli no wildl adjacer ws with	ny of the fe observed ife sign that uplan local to	ervation and food siologist	s du sour s wit	h know	ik use p	the AA	
 ii. Wildlife habitat feature (L) rating. Structural diver of their percent composition seasonal/intermittent; T/E = 	sity is for	rom #1 AA (se	3. For one (2).	lass Ab	cover to breviation	o be co	onsidere surface	ed en	venly dis er durati	tribute ons ar	d, veget e as foll	ated ows:	classes P/P = p	s must permar	be with ent/per	in 20	% of ea	ich othe	er in terr	ms
Structural diversity (see #13)				Hi	gh				898		1	Mode	erate					Lov	\mathcal{L}	
Class cover distribution (all vegetated classes)		Eve	n			Unev	en	_		Eve	n			Unev	en			Eve	シ	
Duration of surface	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	1
water in ≥ 10% of AA							<u> </u>	-								١.,		-	•	١.
Low disturbance at AA (see #12i)	E	E	E	н	E	E	Н	н	E	н	н	М		н	М	М	E	н	м	Ľ
Moderate disturbance	н	н	н	н	н	н	н	M	н	н	м	М	н	М	м	-	н	М	L	ľ
at AA (see #12i) High disturbance at AA	M	м	М	L	М	м	L	L	М	м	L	L	М	L	L	L	L	\odot	L	ī
iii. Rating (use the conci- moderate, or L = low) for th Evidence of wildlife use (i)	is funct		and ii ab	ove	and the	matrix	below t		ive at [ci					and rat	ing (E =	ехс	eptional	, H = h	gh, M =	
EAMOUND OF MICHIGA 026 (1)									· · · · · · · · · · · · · · · · · · ·	POLICIE OF	, course	o . GL	2 (7)							_

High

.9 (H)

.7 (M)

comments: No Wildlike obs., but seas. use likely.

Exceptional

1 (E)

.9 (H)

Substantial

Moderate

AND & WATER B-32

14D. General Fish/Aquatic Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish (i.e., fish use is precluded by perched culvert or other barrier, etc.). If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, etc., circle NA here and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective [such as fish use within an irrigation canal], then Habitat Quality [i below] should be marked as "Low", applied accordingly in ii below, and noted in the comments.)

Habitat Quality (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), moderate (M), or low (L) quality rating.

Duration of surface water in AA	Perm	anent / Pere	ennial	Seas	onal / Intern	nittent	Tem	porary / Ephe	
Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation, etc.	>25%	10-25%	<10%	>25%	10–25%	<10%	>25%	10–25%	<10%
Shading - > 75% of streambank or shoreline within AA contains riparian or wetland scrub-shrub or forested communities	E	E	н	Н	Н	М	М	М	М
Shading - 50 to 75% of streambank or shoreline within AA contains rip, or wetland scrub-shrub or forested communities	Н	Н	М	М	. М	М	М	L	L
Shading - < 50% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities	Н	М	М	М	L	L	L	L	L

Modified Habitat Quality (Circle the appropriate response to the following question. If answer is Y, then reduce rating in I above by one level [E = H, H = M, M = L, L = L]). Is fish use of the AA precluded or significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or equatic N Modified habitat quality rating = (circle) E life support?

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M =

moderate or L = low) for this function)

Types of fish known or	Modified Habitat Quality (ii)										
Types of fish known or suspected within AA	Exceptional	High	Moderate	Low							
Native game fish	1 (E)	.9 (H)	.7 (M)	.5 (M)							
Introduced game fish	.9 (H)	.8 (H)	.6 (M)	.4 (M)							
Non-game fish	.7 (M)	.6 (M)	.5 (M)	.3 (L)							
No fish	.5 (M)	.3 (L)	.2 (L)	.1 (L)							

Comments:

14E. Flood Attenuation: (applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this

Idilction)									
Estimated wetland area in AA subject to periodic flooding		≥ 10 acres			10, >2 acre			≤2 acres	
% of flooded wetland classified as forested, scrub/shrub, or both	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1(H)	.9(H)	.6(M)	.8(H)	.7(H)	.5(M)	.4(M)	.3(L)	CZILD
AA contains unrestricted outlet	.9(H)	.8(H)	.5(M)	.7(H)	.6(M)	.4(M)	.3(L)	.2(L)	.1(L)

II. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA (circle)? Y Comments:

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, circle NA here and proceed with the evaluation.)

 Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see

instructions for further definitions of these terms].)									
Estimated maximum acre feet of water contained in wetlands	1	>5 acre fee	×	(<	5, >1 acre fe	et)	:	1 acre foot	
within the AA that are subject to periodic flooding or ponding	L			_	25				
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	(S/I)	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1(H)	.9(H)	.8(H)	.8(H)	.6(M)	.5(M)	.4(M)	.3(L)	.2(L)
Wetlands in AA flood or pond < 5 out of 10 years	.9(H)	.8(H)	.7(M)	.7(M)	.5(M)	.4(M)	.3(L)	.2(L)	1(L)

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this

Sediment, nutrient, and toxicant input levels within AA	deliver low or comp substantial!	to moderate le counds such th y impaired. Mir is or toxicants,	evels of sedime nat other functi nor sedimental	ion, sources of	nutrients, or toxi use with pote nutrients, or o substantially in	r *probable caus	ses" related to: eives or surrou gh levels of sec that other fund edimentation, s	sediment, inding land diments, tions are ources of
% cover of wetland vegetation in AA	≥ 7	70%	<	70%	≥ 70)%	<7	0%)
Evidence of flooding or ponding in AA	Yes	No	Yes	No	Yes	No	Yes)	No
AA contains no or restricted outlet	1 (H)	.8 (H)	.7 (M)	.5 (M)	.5 (M)	.4 (M)	(376)	.2 (L)
AA contains unrestricted outlet	.9 (H)	.7 (M)	.6 (M)	.4 (M)	.4 (M)	.3 (L)	.2(L)	.1 (L)

Heavy grazmy - Water very turbid.

Pir

14H Sediment/Shoreline Stabilization: (applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If does not apply, circle NA here and proceed to next function)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L

% Cover of wetland streambank or	on of surface water adjacent to rooted veg	ecent to rooted vegetation					
shoreline by species with deep, binding rootmasses	permanent / perennial	seasonal / intermittent	Temporary / ephemeral				
≥ 65%	1 (H)	.9 (H)	.7 (M)				
35-64%	.7 (M)	.5.(M)	.5 (M)				
< 35%	.3 (L)	(.2(L)	.1 (L)				

Comments:

14I. Production Export/Food Chain Support:

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent; T/E /A= temporary/opherneral or absent [see instructions for further definitions of these terms].)

A		Vegeta	ited comp	ponent >	5 acres			Vegeta	ted comp	conent 1	-5 acres			CV/soet/	red.com	conent:	<1 acre	
В	H	ah	Mod	erate	L	ow	Н	igh	Mod	erate	Lo	w	Hi	gh	Mod	erate	1	W)
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	(Yes	No
P/P	114	.9H	.9H	.8H	.8H	.7M	.9H	.8H	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	414	.3L
S/I	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	.7M	.6M	.6M	.5M	.6M	.5M	.5M	.3L	(31)	.2L
TIEI	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.21	.2L	.1L
A												1						

441 Convention Discharge Pachages (Chack the indicators in 1 this helps that each to the AA)

Comments:

140' Ginniguates District Berriagues Ser (Cricon ort workers and	a a serior cinc apply to covery
i. Discharge Indicators	II. Recharge Indicators
Springs are known or observed	Permeable substrate present without underlying impeding layer
Vegetation growing during dormant season/drought	Wetland contains inlet but no outlet
Wetland occurs at the toe of a natural slope	Other
Seeps are present at the wetland edge	
AA permanently flooded during drought periods	
Wetland contains an outlet, but no inlet	
Other	
ill. Rating: Use the information from i and ii above and the table below	w to arrive at [circle] the functional points and rating [H = high, L = low] for this function.
Criteria	Functional Points and Rating
AA is known Discharge/Recharge area or one or more indicators of D/	R present 1 (H)
No Discharge/Recharge indicators present	(F(L))
Available Discharge/Recharge information inadequate to rate AA D/R p	potential NA (Unknown)

Comments:

14K. Uniqueness:

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function

Replacement potential	mature (>80	fen, bog, warm yr-oid) forested ation listed as " MNHP	wetland or	rare type (#13) is	ot contain pre s and structu s high or cont listed as "S2"	ral diversity	cited ra	s not contain re types or a uctural divers low-modera	ssociations sity (#13) is
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	(common	abundant
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	3(1)	.2 (L)
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	(.2 (L)	.1 (L)

Comments:

14L. Recreation/Education Potential: 1. Is the AA a known rec./ed. site: (circle) (N/If yes, rate as [circle] High [1] and go to ii, if no go to iii)

II. Check categories that apply to the AA: ___Educational/scientific study; ___Consumptive rec.; ___Non-consumptive rec.; ___Other

III. Based on the location, diversity, size, and other site attributes, is there strong potential for rec. Jed. use? Y\(\frac{N}{N}\) (If yes, go to ii, then proceed to iv, if no, then rate as [circle] Low [0.1])

Rating (use the matrix below to arrive at foircle) the functional points and rating (H = high, M = moderate, or L = low) for this function.

Ownership	to arrive at jorcej the functional points	Disturbance at AA (#12)	ion io us io con
	low	moderate	high
public ownership	1 (H)	.5 (M)	2(0
private ownership	.7 (M)	.3 (L)	(.f(L)

Comments:

Pin

FUNCTION & VALUE SUMMARY & OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Function al Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	LOW	0.3	1	
B. MT Natural Heritage Program Species Habitat	LOW	0,2	1	
C. General Wildlife Habitat	LOW	0.3	1	
D. General Fish/Aquatic Habitat	NA			
E. Flood Attenuation	Low	0.2	1	
F. Short and Long Term Surface Water Storage	MOD	0,6	1	
G. Sediment/Nutrient/Toxicant Removal	LOW	0.3	1	
H. Sediment/Shoreline Stabilization	LOW	0.2	1	
Production Export/Food Chain Support	LOW	0.3	1	
J. Groundwater Discharge/Recharge	LOW	0.1	1	
K. Uniqueness	LOW	0.2	1	
L. Recreation/Education Potential	LOW	0.1	1	
Totals:		2.8	11	

25%

-		•		-	١
•	•				
•		٠	•		
			٦.		
				•	
		•		•	

(OVERALL ANALYSIS AREA (AA) RATING: (Circle appropriate category based on the criteria outlined below)
	Category I Wetland: (Must satisfy one of the following criteria; if does not meet criteria, go to Category II) Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or Score of 1 functional point for Uniqueness; or Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or Total actual functional points > 80% (round to nearest whole #) of total possible functional points.
	Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; if not satisfied, go to Category IV) Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or Score of .9 or 1 functional point for General Wildlife Habitat; or Score of .9 or 1 functional point for General Fish/Aquatic Habitat; or "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or Score of .9 functional point for Uniqueness; or Total Actual Functional Points > 65% (round to nearest whole #) of total possible functional points.
L	Category III Wetland: (Criteria for Categories I, II or IV not satisfied)
	Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy criteria go to Category III) "Low" rating for Uniqueness; and "Low" rating for Production Export/Food Chain Support; and Total actual functional points < 30% (round to nearest whole #) of total possible functional points



I. Project Name: Fourchet	Montana We	tland As	SSESSM(2. Project #:	ent	Form (revis	ed 5/25	5/1999) _ Control #:_		
3. Evaluation Date: Mo. 8 Da	y30 yr. Ol 4. E	Evaluator(s):	55/1	n7	5 . Wetl	ands/Site #	(s) Albati	055 Erse	rsál
5. Wetland Location(s): I. Logal: II. Approx. Stationing or Mi	T22 (Drs: 129						ΕαW; S		:
iii. Watershed: 1004 Other Location Information	0104 GPS	S Reference	No. (if appli	ios): _	NA		, RE	SERVO)	<u> </u>
7. a. Evaluating Agency:	fected by MDT project e-construction ost-construction	t 9. Ass see in	tiand size: (i sessment an structions on	oa: (A deten	A tot., ac., mining AA)	(meas	lly estimated) ured, e.g. by GP(visually estin(measured, e	nated) .g. by GPS (i	if applies])
10. Classification of Wetland an	System		according to Subsystem	Brinso	n, first col.; USFV	VS accordin	g to Cowardin [1 Water Regime	979], remaini Modifier	ing cols.) % of AA
Do a Couch data	Dalus delas					EM	SF	D	10
Dep (surt. Wahr)	Palustrine Palustrine					UB	5F	b	90
	7 4.43,777.42								1
									-
11. Estimated relative abundance (Circle one) Un Comments:	ce: (of similarly classifi known	ied sites with Rare	in the same t	Major I	Montana Watershi	ed Basin, se	e definitions) Abunda	nt	
12. General condition of AA: i. Regarding disturbance:	(usa matrix balaw to d	atermine foire	clo) secondia	to ros	oonse)				
Conditions within		elemine join	Pro	edomir	nant conditions ad	jacent to (w			
		natural state; logged, or oth	ed in predominar is not grazed, he serwise converte tain roads or built	eyed, d,	Land not cultivated, grazed or hayed or s or has been subject contains few roads of	electively logge to minor clear?	d, subject to sub	d or heavily graz- standal fill place: drological alterat sally.	ment, grading.
A occurs and is managed in predominantly grazed, hayed, logged, or otherwise conventioneds or occupied buildings.		low disturb	ance		low disturbance		moderate d	isturbance	
AA not cultivated, but moderately grazed or logged; or has been subject to relatively min placement, or hydrological alteration; contain	nor clearing, fill	moderate o	disturbance		moderate distur	bance	high disturt	bance	
AA cultivated or heavily grazed or logged; s substantial fill placement, grading, clearing, high road, or building density.	ubject to relatively	high distur	bance		high disturbance	9	high distur	bance	
Comments: (types of disturt II. Prominent weedy, alien,						(-12-1	arv .		
iii. Provide priet descriptiv	Albar	1035 4	ESINO	011					
13. Structural Diversity: (based	on number of "Coward	din" vegetate	nd classes pr	esent	do not include un	vegetated cl	asses], see #10		
# of "Cowardin" vegetated class	es present in AA (see	9 #10)			ed classes (or s forested)	2 vegetate 1 if foreste	d classes (or od)	≤ 1 vegetate	od class
Rating (circle)			High	1		Moderate		Low	
Comments:							,		



	SECTION	PERTAINING	to FUNCTIONS	& VALUES ASSI	ESSMENT /) /~	
 Habitat for Federally Lists AA is Documented (D) or S Primary or critical habitat (IIs Secondary habitat (IIst specific incidental habitat (IIst specific incidental habitat (IIst specific incidental habitat incidental habit	uspected (S) to co st species) cles) les)	ntain (circle one l	pased on definitions	contained in instruc			
II. Rating (use the conclusions this function)	from i above and t	he matrix below to	o arrive at [circle] the	functional points a	nd rating (H = high	, M = moderate, or L	= low] for
Highest Habitat Level	doc./primary	sus/primary	doc./secondary	sus./secondary	doc./incidental	sus_fincidental	None
Functional Points and Reting	1 (H)	.9 (H)	.8 (M)	.7 (M)	.5 (L)	(.3(L)	0 (L)
Sources for documented use (e.g.	g. observations, re-	cords, etc):					
Primary or critical habitat (II Secondary habitat (IIst spe Incidental habitat (IIst spec No usable habitat	cies) ies)	D &	o arrive at [circle] the		nd rating (H = high	i, M = moderate, or L	= low] for
this function)	T		1		Г		
Highest Habitat Level	doc./primary	sus/primary	doc./secondary	sus./secondary	doc./incidental	sus.fincidental	None
Functional Points and Rating		.8 (H)	.7 (M)	.6 (M)	.2 (L)	198	0 (L)
Sources for documented use (e.g.	g. observations, re	cords, etc.):					
14C. General Wildlife Habitat I. Evidence of overall wildlife Substantial (based on any of th observations of abundant w abundant wildlife sign such presence of extremely limiti interviews with local biologis	use in the AA (cir e following [check] fildlife #'s or high s as scat, tracks, no ng habitat features	i): pecies diversity (est structures, ga not available in th	during any period) me trails, etc.	Low (based few or no little to no sparse a	on any of the follo wildlife observation wildlife sign djacent upland foo	ons during peak use p	
Moderate (based on any of the observations of scattered w common occurrence of wild adequate adjacent upland for interviews with local biologis	idlife groups or inc life sign such as a good sources sts with knowledge	dividuals or relative cat, tracks, nest so of the AA	structures, game tra	ils, etc.			
ii. Wildlife habitat features (wo(L) rating. Structural diversity is	from #13. For cla	ss cover to be co	nsidered evenly dist	ributed, vegetated o	lasses must be wit	thin 20% of each other	
of their percent composition of the						erennial; S/I =	
seasonal/intermittent; T/E = temp		and A = absent [s High	see instructions for f	urtner definitions of Moder		T CION) —

SOSSITION INTERITRICALLY IVE	- icinp	n an yr ca	MICHICA	и, ф	N / - a	COCIII	300 11130	, 400	010104	1010101	OCH HOL	~~ ,	21 61000		-/				$\overline{}$	
Structural diversity (see #13)				Hi	gh						1	Mod	erate					Low	Ζ	
Class cover distribution (all vegetated classes)		Eve	n			Unev	en			Eve	п			Unev	en			Ewe C	7	
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	Α	P/P	S/I	T/E	A	P/P	S/I	T/E	Α	P/P	(§/)	T/E	^
Low disturbance at AA (see #12i)	E	E	E	н	E	E	н	I	E	н	Н	M	E	н	М	M	E	н	М	1
Moderate disturbance at AA (see #12i)	н	Н	Н	Н	Н	н	н	M	H	н	М	М	H	м	М	L	н	> (L	1
High disturbance at AA (see #12i)	м	М	М	L	м	М	L	L	М	м	L	L	М	L	L	L	L		L	L

III. Rating (use the conclusions from I and II above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low] for this function)

Evidence of wildlife use (i)		Wildlife habitat fea	atures rating (ii)	
	Exceptional	High	Moderate	You
Substantial	1 (E)	.9 (H)	.8 (H)	.7 (M)
Moderate	.9 (H)	.7 (M)	.5 (M)	(.3(L))
Minimal	.6 (M)	.4 (M)	.2 (L)	.1 (L)

comments: Western Chorus frogs obs. (few 2-3)

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14D. General Fish/Aquatic Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, etc., circle NA here and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective [such as fish use within an irrigation canal], then Habitat Quality [i below] should be marked as "Low", applied accordingly in ii below, and noted in the comments.)

. Habitat Quality (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), moderate (M), or low (L) quality rating.

Duration of surface water in AA	Perm	anent / Pere	ennial	Seas	onal / Intern	nittent	Tem	porary / Ephe	emeral
Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation, etc.	>25%	10–25%	<10%	>25%	10–25%	<10%	>25%	10–25%	<10%
Shading - >75% of streambank or shoreline within AA contains riparian or wetland scrub-shrub or forested communities	E	E	Н	Н	Н	М	М	М	М
Shading – 50 to 75% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities	Н	Н	М	М	М	М	М	L	L
Shading - < 50% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities	Н	М	М	М	L	L	L	L	L

ii. Modified Habitat Quality (Circle the appropriate response to the following question. If answer is Y, then reduce rating in i above by one level [E = H, H = M, M = L, L = L]). Is fish use of the AA precluded or significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or equation life support?

Y

N

Modified habitat quality rating = (circle)

E

H

M

L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low] for this function)

Types of fish known or		Modified Hab	oitat Quality (ii)	
suspected within AA	Exceptional	High	Moderate	Low
Native game fish	1 (E) 1	.9 (H)	.7 (M)	.5 (M)
Introduced game fish	.9 (H)	.8 (H)	.6 (M)	.4 (M)
Non-game fish	.7 (M)	.6 (M)	.5 (M)	.3 (L)
No fish	.5 (M)	.3 (L)	.2 (L)	.1 (L)

Comments:

14E. Flood Attenuation: (applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function)

Estimated wetland area in AA subject to periodic flooding		≥ 10 acres		<	10, >2 acres	5	(<2 acres	
% of flooded wetland classified as forested, scrub/shrub, or both	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	(<25%)
AA contains no outlet or restricted outlet	1(H)	.9(H)	.6(M)	.8(H)	.7(H)	.5(M)	.4(M)	.3(L)	(2(L))
AA contains unrestricted outlet	.9(H)	.8(H)	.5(M)	.7(H)	.6(M)	.4(M)	.3(L)	.2(L)	.1(L)

ii. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA (circle)? Y comments:

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, circle NA here and proceed with the evaluation.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this
function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see
line for this default as the following form to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this
function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see

instructions for further definitions of these terms].)				10	_	_			
Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding		>5 acre fee	et	⟨.5	, >1 acre f	eet)	:	≤1 acre foot	
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I)	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1(H)	.9(H)	.8(H)	.8(H)	(.6(M))	.5(M)	.4(M)	.3(L)	.2(L)
Wetlands in AA flood or pond < 5 out of 10 years	.9(H)	.8(H)	.7(M)	.7(M)	.5(M)	.4(M)	.3(L)	.2(L)	.1(L)

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Sediment, nutrient, and toxicant input levels within AA	deliver low or com substantial	to moderate le bounds such th ly impaired. Mir ts or toxicants,	wels of sedimentation of sedimentations of sedimentations.	tion, sources of	nutrients, or co	r *probable caus cants or AA rec ntial to deliver hi ompounds such spaired. Major se	ses" related to seives or surroungh levels of sections of that other function, se	ediment, nding land liments, tions are ources of
% cover of wetland vegetation in AA	>	70%	<	70%	≥ 70	1%	< 70	0%)
Evidence of flooding or ponding in AA	Yes	No	Yes	No	Yes	No	Yes)	No
AA contains no or restricted outlet	1 (H)	.8 (H)	.7 (M)	.5 (M)	.5 (M)	.4 (M)	(3(L))	.2 (L)
AA contains unrestricted outlet	.9 (H)	.7 (M)	.6 (M)	.4 (M)	.4 (M)	.3 (L)	.2(L)	.1 (L)

comments: Heavily grazed - water furbid.

Alb

14H Sediment/Shoreline Stabilization: (applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action) If does not apply, circle NA here and proceed to next function)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L.

% Cover of wetland streambank or	Duration	on of surface water adjacent to rooted ve-	getation
shoreline by species with deep, binding rootmasses	permanent / perennial	seasonal / intermittent	Temporary / ephemeral
≥ 65%	1 (H)	.9 (H)	.7 (M)
35-64%	.7 (M)	.6 (M)	.5 (M)
< 35%	.3 (L)	(2(1))	.1 (L)

Comments:

14I. Production Export/Food Chain Support:

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent; T/E /A= temporary/ephemeral or absent [see instructions for further definitions of these terms].)

A		Vegeta	ted comp	ponent >	5 acres			Vegeta	ted comp	conent 1	5 acres			Vegeta	ated com	conent ·	c1 acre	
В	Hi	gh	Mod	erate	L	OW	Н	gh	Mod	erate	Lo	w	Hi	gh	Mod	erate		w)
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	CYes	No
P/P	1H	.9H	.9H	.8H	.8H	.7M	.9H	.8H	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L
S/I	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	.7M	.6M	.6M	.5M	.6M	.5M	.5M	.3L	(3L)	.2L
T/E/	H8.	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L
A				1					1						1	1		

Comments:

I. Discharge Indicators Springs are known or observed Vegetation growing during dormant season/drought Wetland occurs at the toe of a natural slope Seeps are present at the wetland edge AA permanently flooded during drought periods Wetland contains an outlet, but no inlet Other	H. Recharge Indicators ——Permeable substrate present without underlying impeding layer ——Wetland contains inlet but no outlet ——Other
	ow to arrive at [circle] the functional points and rating [H = high, L = low] for this function.
Criteria	Functional Points and Rating
AA is known Discharge/Recharge area or one or more indicators of D	/R present 1 (H)
No Discharge/Recharge indicators present	(.1(L))
Available Discharge/Recharge information inadequate to rate AA D/R	potential N/A (Unknown)

Comments:

14K. Uniqueness:

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function

Replacement potential	mature (>80	fen, bog, warm yr-old) forested ation listed as " MNHP	wetland or	rare type (#13) is	s and structu s high or cont		cited ra	s not contain re types or a uctural diver- low-modera	ssociations sity (#13) is
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	3(1)	.2 (L)
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	(.2 (L)	.1 (L)

Comments:

14L. Recreation/Education Potential: i. Is the AA a known rec./ed. site: (circle) Y N If yes, rate as [circle] High [1] and go to ii; if no go to iii)
II. Check categories that apply to the AA: ___Educational/scientific study; ___Consumptive rec.; ___Non-consumptive rec.; ___Other

iii. Based on the location, diversity, size, and other site attributes, is there strong potential for rec./ed. use? Y.N.

(If yes, go to ii, then proceed to iv, if no, then rate as [circle] Low [0.1])

14J. Groundwater Discharge/Recharge: (Check the indicators in i & ii below that apply to the AA)

Iv. Rating (use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Ownership		Disturbance at AA (#12i)	
	low	moderate	high
public ownership	1 (H)	.5 (M)	240
private ownership	.7 (M)	.3 (L)	(1 (L))



FUNCTION & VALUE SUMMARY & OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Function al Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	LOW	0.3	1	
B. MT Natural Heritage Program Species Habitat	LOW	0.1	1	
C. General Wildlife Habitat	LOW	0.3	1	
D. General Fish/Aquatic Habitat	NA	_		
E. Flood Attenuation	Low	0.2	1	
F. Short and Long Term Surface Water Storage	MOD	0.6	1	
G. Sediment/Nutrient/Toxicant Removal	LOW	0.3	1	
H. Sediment/Shoreline Stabilization	LOW	0.2	1	
I. Production Export/Food Chain Support	LOW	0.3	1	
J. Groundwater Discharge/Recharge	LOW	0.1	1	
K. Uniqueness	LOW	0.2	1	
L. Recreation/Education Potential	LOW	0.1	1	
Totals:		2.7	11	

25%

OVERALL ANALYSIS AREA (AA) RATING: (Circle appropriate category based on the criteria outlined below)



Category I Wetland: (Must satisfy one of the following criteria; if does not meet criteria, go to Category II) Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or Score of 1 functional point for Uniqueness; or Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or Total actual functional points > 80% (round to nearest whole #) of total possible functional points.
Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; if not satisfied, go to Category IV) Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or Score of .9 or 1 functional point for General Wildlife Habitat; or Score of .9 or 1 functional point for General Fish/Aquatic Habitat; or "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or Score of .9 functional point for Uniqueness; or Total Actual Functional Points > 65% (round to nearest whole #) of total possible functional points.
Category III Wetland: (Criteria for Categories I, II or IV not satisfied)
Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy criteria go to Category III) "Low" rating for Uniqueness; and "Low" rating for Production Export/Food Chain Support; and Total actual functional points < 30% (round to nearest whole #) of total possible functional points

DATA FORM ROUTINE WETLAND

	Fourthette Creek Reserv Montane Department of T Benglund / Traxier		on .	Project No: Task 23	Date: 30-A County: Phili State: Mon Plot ID: 1		
is the site significants the area a potential	stances exist on the site ntly disturbed (Alypical S (Ial Problem Area? ain on the reverse side)			es No Community ID: EM Transect ID: NA Pleid Location: Reshight Reservoir	/AB		
/EGETATION			USPWS R	egion No. 4)			
Dominant Plant Sp	ecles(Latin/Common)	Stratum	indicator	Plant Species(Latin/Common)		Stradum.	indicator
Hordeum Jubetum		Herb	FACW	Scirpus mertimus		Herb	NI
Berley Fox-Yall				Bulnush, Setmersh			
Eleocheria palustria		Herb	OBL	Myrisphyslum apicetum		ierb	OBL
Spikerush Creeping				Weter-Mifoli, Eurasian			
Potemogeton Italias	91	Herb	OBL	Scripus sculus		Herb	OBL
Pondweed,Leafy				Burush Herd-Stem			
Cistichiis apicate		Herb	NI	Xenthium strumerium		Herb	FAC
Seligrasa Irland				Cocke-Bur,Rough			
Eleocheria aciculari	•	Herb	OBL	Nesturbum officinele		Herb	OBL
Spikerush Least				Water-Cress, True			
Septierie curionie		Herb	OBL				
Arrow-Heed Northe	m		100				
		_					
		1_					
		-					_
Percent of Domina (excluding FAC-) Remerks:	int Species that are OSL 9/9 = 100.00%	, FACW or	FAC:	FAC Neutral: 8/8 = 100 Numeric Index: 12/9 =			
(excluding FAC-)		, FACW or	FAC:				
(excluding FAC-) Remarks: HYDROLOGY YES Recorded i NO Street	9/9 = 100 0016 Data(Describe in Remark um, Lake or Tide Gauge d Photographs			Numeric Index: 12/9 = land Hydrology Indicators Primary Indicators YES Inundated YES Saturated in Upper 12 is	1.33		
(excluding FAC-) Remarks: HYDROLOGY YES Recorded NO Stree YES Aeria	9/9 = 100 0016 Data(Describe in Remark um, Lake or Tide Gauge d Photographs			Numeric Index: 12/9 = land Hydrology Indicators Primary Indicators YES Immidated YES Saturated in Upper 12 to NO Water Marks NO Drift Lines	1.33		
(excluding FAC-) Remerks: HYDROLOGY YES Recorded NO Stree YES Auta NO Other	9/9 = 100.00% Data(Describe in Remark an, Lake or Tide Gauge a Photographs r			Numeric Index: 12/9 = land Hydrology Indicators Primary Indicators YES Inundated YES Saturated in Upper 12 in	1.33		
(excluding FAC-) Remarks: HYDROLOGY YES Recorded I NO Stree YES Ands NO Other NO He Record Red Observation Depth of S	Data/Describe in Remark um, Lake or Tide Gauge il Photographs red Data ins	= 48 (fn.)		Numeric Index: 12/9 = Iand Hydrology Indicators Primary Indicators YES Baturated in Upper 12 to NO Water Marks NO Drift Lines YES Bediment Deposits YES Drainage Patterns in W. Secondary Indicators NO Oxidized Root Channel	1.33	nches	
(excluding FAC-) Remarks: HYDROLOGY YES Recorded I NO Stree YES Ands NO Other NO He Record Red Observation Depth of S	Data(Describe in Remark um, Lake or Tide Gauge of Photographs and Data	15):		Numeric Index: 12/9 = land Hydrology Indicators Primary Indicators YES trundeted YES Saturated in Upper 12 to NO Drift Lines YES Seatment Deposits YES Drainage Patterns in W Secondary Indicators	nches etlands is in Upper 12 is	nches	

DATA FORM ROUTINE WETLAND



(1987 COE Wetlands Delineation Manual)

Project/Site:	Fourthette Creek Reserve	Project No: Task 23	Date: 30-Aug-2001	
Applicant/Owner:	Mortana Department of Transportation	80 1 To 10 10 10 10 10 10 10 10 10 10 10 10 10	County: Philips	
Investigators:	Berglund / Traxier		State: Mortana	
			Plot ID: 1	

Map Symi	bot: NA y (Subgroup		Unmapped Unknown			ped Hydric Inclusion? ervations Confirm Mapped Type? Yes (N
Depth (inches)	Hortzon	Matrix Color (Munsel Moist)	Mottle Color (Munsell Moist)	Mot Abundance		Texture, Concretions, Structure, etc
10	8	10YR4/3	N/A	N/A	N/A	Cley
10		2.674/5	2 5 7 5 /6	Common	Fairt	Cay
10	8	2.574/2	2.575/6	Fow	Fairt	Cley
	NO Suffe	sci : Epipedon	Colors	NO Clate	Organic C Inic Streak Id on Loca Id on Natio	content in Surface Layer in Sandy Solls sing in Sandy Solls il Hydric Solls List snal Hydric Solls List in Remarke)
Romarks Class wells		ile support obligate s	pacies. Softs are city	e and are Blody	poorly to ve	ry poorly drained.

DATA FORM **ROUTINE WETLAND**

(1987 COE Wetlands Delineation Manual)

Project/Site: Fourchette Creek Reserve Applicant/Owner: Montana Department of T Investigators: Berglund / Traxler		on	Pr	oject No: Task 23	County: P	-Aug-2001 nillips ontana	
Do Normal Circumstances exist on the site is the site significantly disturbed (Atypical S is the area a potential Problem Area? (If needed, explain on the reverse side)		Ÿ	es No es No	Community ID: Transect ID: Field Location: Penguin Reservol	EM/AB NA		
VEGETATION	(USPWS R	egion No. 4)			
Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Spe	cles(Latin/Commo	on)	Stratum	Indicator
Hordeum jubatum	Herb	FACW		n lepethilolium		Herb	OBL
Barley, Fox-Tail			Willow-We				
Xenthium strumerium	Herb	FAC	Potamogeton follosus Herb			OBL	
Cockle-Bur, Rough			Pondwee				
Eleocharia palustria	Herb	OBL	Elodes ce			Herb	OBL
Spikerush, Creeping			Water-We				
Eleocharia acicularia	Herb	OBL		um spicatum		Herb	OBL
Spikerush, Least				loil, Eurasian			
Beckmannia syzigachne	Herb	OBL	Segittarie			Herb	OBL
Sloughgrass, American			Arrow-He	d, Northern		1	
	1					1	
						1	
	-					1	
Percent of Dominant Species that are OBL	FACW or	FAC:	IFAC N	eutral: 9/9 =	100.00%		Ь
(excluding FAC-) 10/10 = 100.00%			Numer	tc Index: 13/1	0 = 1.30		
Remarks: HYDROLOGY							
YES Recorded Data(Describe in Remark NO Stream, Lake or Tide Gauge YES Aerial Photographs NO Other NO No Recorded Data	s):	Wel	YES IN YES YES	nundated saturated in Upper Vater Marks	12 Inches		
Field Observations			NO 8	rift Lines Jediment Deposits Irainage Patterns i			
NAME OF OCCUPANT OF STREET	- 10 4-1		Secondar	Indicators			
Depth of Surface Water:	= 48 (in.)			xidized Root Cha Vater-Stained Leav		Z Inches	
Depth to Free Water in Pit:	N/A (In.)		NO L	ocal Soil Survey (
Depth to Saturated Soil:	N/A (In.)			AC-Neutral Test ther(Explain in Re	emarks)		
Remarks: inundated in pond, saturated at edges.							

DATA FORM **ROUTINE WETLAND**



(1987 COE Wetlands Delineation Manual)

Project/Site: Fourchette Creek Reserve
Applicant/Owner: Montana Department of Transportation Project No: Task 23 Date: 30-Aug-2001 County: Philips State: Montana Investigators: Berglund / Traxler Plot ID: 2

Map Symi	ool: 250E y (Subgroup	s and Phase); Drainage Class; b); Unignown	Bascovey day PD (?)			ped Hydric inclusion? ervations Confirm Mapped Type? (Yes) No.
Depth (inches)	Hortzon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mot		Texture, Concretions, Structure, etc
10	В	10YR4/2	10YR5/8	Common	Distinct	Clay
	NO Suffic NO Aquic NO Redu	Epipedon	Colors	NO Orga NO Liste	Organic C anic Streak ed on Local ed on Natio	ontent in Surface Layer in Sandy Solls ing in Sandy Solls I Hydric Solls List nal Hydric Solls List in Remarks)

WITH	AND	DET	ERMI	MATE	1

Hydrophytic Vegetation Present? Wetland Hydrology Present?	(fes) No	is the Sampling Point within the Wetland?	(es) No
Hydric Solls Present?	(es) No		
Remarks:			
EM / AB communities at Penguin Rese	rvoir.		

DATA FORM ROUTINE WETLAND

Project/Site: Fourchette Creek Reserve Applicant/Owner: Montana Department of Tri Investigators: Berglund / Traxter	ansportation	on .	Pr	roject No: Tas	k 23	County: P	D-Aug-2001 hillips ontare	
Do Normal Circumstances exist on the site? is the site significantly disturbed (Atypical Sit is the area a potential Problem Area? (if needed, explain on the reverse side)	uation:)?	Y	89 № 89 № 89 №	Community if Transact ID: Field Location Pintal Reserv	NA n:	h ya Tankana		
VEGETATION		USFWS Re	glon No.	4)				
Dominant Plant Species(Latin/Common)				cles(Latin/Cor	mmon)		Stratum	Indicator
Hordeum jubatum	Herb	FACW	Distichila				Herb	NI
Barley Fox-Tail			Saltgrass, Irland					
Echinochioe crusquiii	Herb	FACW		n dasystechyun			Herb	FAC
Grass, Barryard Eleocharia palustris	Herb	OBL	Agropyro	ss, Thick-Spike			Herb	FAC
Spikerush Creeping	1	ا	Cunckgra				1700	~
Springer, Cooping								
							1	
							1	
							_	
	_						-	
Percent of Dominant Species that are OBL, (excluding FAC-) 5/5 = 100.00%	FACW or	FAC:			3 = 100.0 1/5 = 2			
(excluding FAC-) 5/5 = 100.00% Remarks: Narrow border around "maximum" impoundment. N								
(excluding FAC-) 5/5 = 100.00% Remarks: Narrow border around "maximum" impoundment. N	o aquatic vi	•g.	Nume		1/5 = 2			
(excluding FAC-) 5/5 = 100.00% Remarks: Narrow border around "maximum" impoundment. N HYDROLOGY YES Recorded Data(Describe in Remarks NO Stream, Lake or Tide Gauge	o aquatic vi	eg.	Numer	ric Index: 1	1/5 = 2			
(excluding FAC-) 5/5 = 100.00% Remarks: Nerrow border around 'maximum' impoundment. N HYDROLOGY YES Recorded Data(Describe in Remarks NO Stream, Lake or Tide Gauge YES Aerial Photographs	o aquatic vi	eg.	Numer	ology indicator	1/5 = 2	20		
(excluding FAC-) 5/5 = 100.00% Remarks: Narrow border around "maximum" impoundment. N HYDROLOGY YES Recorded Data(Describe in Remarks NO Stream, Lake or Tide Gauge YES Aerial Photographs NO Other	o aquatic vi	eg.	and Hydro	ology Indicator dicators nundated Saturated in Up	1/5 = 2	20		
(excluding FAC-) 5/5 = 100.00% Remarks: Nerrow border around 'maximum' impoundment. N HYDROLOGY YES Recorded Data(Describe in Remarks NO Stream, Lake or Tide Gauge YES Aerial Photographs	o aquatic vi	eg.	and Hydro	ology indicator	1/5 = 2	20		
(excluding FAC-) 5/5 = 100.00% Remarks: Narrow border around "maximum" impoundment. N HYDROLOGY YES Recorded Data(Describe in Remarks NO Stream, Lake or Tide Gauge YES Aerial Photographs NO Other	o aquatic vi	wet	and Hydro Primary in NO 8 YES V NO 0 NO 0	ology indicators nundated Saturated in Up Water Marks Drift Lines Sediment Depo	1/5 = 2	ches		
(excluding FAC-) 5/5 = 100.00% Remarks: Narrow border around "maximum" impoundment. No HYDROLOGY YES Recorded Data(Describe in Remarks NO Stream, Lake or Tide Gauge YES Aarial Photographs NO Other NO No Recorded Data Field Observations	o aquatic vi	wet	Numer	ology indicator dicators nundated saturated in Up Yater Marks Oriff Lines Sediment Deporatinge Patter y Indicators Oxidized Root	1/5 = 2.	20 ches	2 Inches	
(excluding FAC-) 5/5 = 100.00% Remarks: Narrow border around "maximum" impoundment. N HYDROLOGY YES Recorded Data(Describe in Remarks NO Stream, Lake or Tide Gauge YES Aarial Photographs NO Other NO No Recorded Data Field Observations	o equatic vi	wet	and Hydrin No a YES V NO C NO C Secondar	ology Indicator dicators nundated Saturated in Up Vater Marks Sediment Depo Drahage Patter y Indicators	s pper 12 incomes in Well Channels Leaves	20 ches	2 Inches	

Page 1 of 2



DATA FORM ROUTINE WETLAND

Project/Site: Fourchette Creek Reserve Applicant/Owner: Montana Department of Transportation Investigators: Berglund / Traxler					Project N	o: Task 23	County: Phil	Aug-2001 lips ntane
SOILS								
Map Symi	bol: NA y (Subgroup	s and Phase): Drainage Class: b): Unknown	Unmapped Unknown			ed Hydric inc rvations Con	lusion? Ifrm Mapped Ty	pe? Yes (N
Depth (inches)	Hortzon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	,	Mottle Abundance/Contrast Texture, Co			ture, etc
10	8	10YR4/2	10YR5/8	Common	Distinct	Clay		
10	В	10YR4/2	10YR5/6	Few	Feint	Clay		
Remarks	NO Suffic NO Aquic NO Redu YES Gleye	Epipedon	Colors	NO Concretions NO High Organic Content in Surface Layer in Sandy Solis NO Organic Streaking in Sandy Solis NO Listed on Local Hydric Solis List NO Listed on National Hydric Solis List NO Other (Explain in Remarks)				
	ong fringe are	**************************************				11 - 11 - 11 - 11 - 11 - 11 - 11 - 11		
THE REPORT OF REAL PROPERTY.	c Vegetation) No	is the Samp	ing Point w	thin the Weta	nd? (Yes)	No
	lydrology Pro		/				_	
Hydric Sci Remarks:	ils Present?	(Yes) No					
EM commu	nity at Pintail	Reservoir, No wetten	d veg present in mair	n impoundment	area. Water	extremely turbi	i .	

Page 2 of 2

DATA FORM ROUTINE WETLAND

(1987 COE Wetlands Delineation Manual)

Project/Site: Fourchette Creek Reser Applicant/Owner: Montana Department of Investigators: Berglund / Traxfor	ve		Pr	oject No: Task 23	County: P	Montana .	
Do Normal Circumstances exist on the sit is the site significantly disturbed (Atypical is the area a potential Problem Area? (If needed, explain on the reverse side)		Ÿ	89 No 89 No	Community ID: Transect ID: Field Location: Albatross Reserve	EM NA oir		
VEGETATION		USFWS R	سند بدروست				,
Dominant Plant Species(Latin/Common)				cles(Latin/Commo	on)	Stratum	Indicator
Eleocheris pelustris	Herb	OBL		strumerium		Herb	FAC
Spikerush, Creeping	Herb	FACW	Cockle-Bu			Herb	OBL
Hordeum Jubatum	Hero	FACW	Fem.Hein			٦,,,,	1
Barley,Fox-Tail							
						1-	
	1-]	
	3					}—	
	_	-				+	
Percent of Dominant Species that are OB (excluding FAC-) 4/4 = 100.00% Remarks: 1 salix edgus seeding. Sample in northwest *ar			Nume		= 100.00% 1 = 1.75		
HYDROLOGY							
YES Recorded Data(Describe in Rema	rks):	We		ology indicators			
NO Stream, Lake or Tide Gauge			Primary in				
YES Aerial Photographs NO Other			YES	nundated Saturated in Upper Water Marks	r 12 Inches		
NO No Recorded Data			NO I	Drift Lines Bediment Deposits			
Field Observations			NO I	Drainage Patterns ny Indicators	in Wetlands		
Depth of Surface Water:	N/A (In.)			Oxidized Root Cha		12 Inches	
Depth to Free Water in Pit:	N/A (In.)		NO	Water-Stained Lea Local Soil Survey FAC-Neutral Test			
Depth to Saturated Soil:	= 12 (In.)			Other(Explain in R	ernarks)		
Remarks: impoundment inundated, but no wetland veg. V	Vater very turb	id.					



DATA FORM ROUTINE WETLAND

(1987 COE Wetlands Delineation Manual)

Project/Sit Applicant/ Investigate	Owner:	Fourchette Creek Res Montana Department o Berglund / Traxler			Project N	o: Task 23	Date: County: State: Plot ID:	30-Aug-20 Phillips Montana 4	01
SOILS									
Map Symb	ol: 9250 (Subgro	ries and Phase): Drainage Class: up): Unknown	Sunburst PD (?)			oed Hydric inc ervations Con		ed Type?	Yes (No
Depth (inches)	Hortzon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	-	ottle ce/Contrast	Texture, Co	ncretions,	Structure, e	rtc
10	В	10YR4/2	10YR5/8	Few	Distinct	Clay			
Hydric So	10 His 10 His 10 Su 10 Aq 10 Re			NO 11 NO 01 NO 01 NO 01	ganic Streak sted on Loca	ontent in Suri ing in Sandy i I Hydric Solls nai Hydric So	Solls List	in Sandy S	olis

Damarka:			
Bremarks.			
0			
Remarks: Sample in NW *arm*.			
II .			
1)			
14			
II.			
li .			
H.			
K		where the last real party and	NAME AND ADDRESS OF TAXABLE PARTY.

WETLAND DETERMINATION Hydrophytic Vegetation Present? Wetland Hydrology Present?	(es) No	is the Sampling Point within the Wetland?	(65) No
Hydric Soils Present? Remarks: EM community at Albatross Reservoir.		to three narrow strips along OHW mark. No wetland ve	j in Impoundment, Water ver
		•	
turbid.		,	

Explanation for response to: Normal Circumstances? Atypical Situation? Potential Problem Area?

The site is possibly a seasonal wetland (Problem Area Type b); hydrology may be present during early growing season, but may be reduced or lacking during later growing season. 2001 was low water year; site was drier than would be in "normal" year.

Page 2 of 2

DATA FORM **ROUTINE WETLAND**

(1987 COE Wetlands Delineation Manual)

Project No: Task 23

Date: 30-Aug-2001

Project/Site:

Fourthette Creek Reserve

nvestigators: Berglund / Traxier						State: Plot ID:	Montana 5	
to Normal Circumstances exist on the si the site significantly disturbed (Atypica to the area a potential Problem Area? (If needed, explain on the reverse side)	Situation:)?	Y	s (%)	Community ID: Transect ID: Field Location: Puffin Reservoir	NA			
EGETATION	- (1	USFWS R	glon No.	1)				
ominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Spe	cies (Latin/Comi	non)		Stratum	Indicate
							-	_
Percent of Dominant Species that are OB (excluding FAC-) 0/0 = 0.00% Remarks: io wetland vegetation; site virtually unvegetated actus, blue grams, and wheatgrass.					/0 = 0.		weed, prickly p	ear
YDROLOGY YES Recorded Data(Describe in Rema NO Stream, Lake or Tide Gauge YES Aerial Photographs NO Other NO Recorded Data Field Observations Depth of Surface Water: Depth to Free Water in Pit:		Wet	Primary in YES is YES S YES VES S NO C NO C	nundated laturated in Upp Vater Marks wifft Lines lediment Deposi trainage Pattern y Indicators vides and Cot Vater-Stained La ocal Soll Survey	ts s in Wet namels naves y Data	lands	12 Inches	
Depth to Saturated Soil:	N/A (In.)			AC-Neutral Test Other(Explain in I		1)		
Remarks: Impoundment inundated, perimeter saturated.								



DATA FORM **ROUTINE WETLAND**

(1987 COF Wetlands Delineation Menual)

	11101 COL 114Ddiloc	Demination manag		
Project/Site: Applicant/Owner: Investigators:	Fourchette Creek Reserve Montana Department of Transportation Berglund / Traxler	Project No: Task 23	Date: 30-Aug-2001 County: Philips State: Montana Plot ID: 5	
SOILS				
Map Unit Name (S Map Symbol: NA Taxonomy (Subgr	Drainage Class: Unknown	Mapped Hydric in Field Observations Cor		No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		ttie e/Contrast	Texture, Concretions, Structure, etc
10	В	10YR4/1	10YR4/6	Few	Fairt	Clay

3	NO Meteori	
ı	NO Histosol	NO Concretions
	NO Histic Epipedon	NO High Organic Content in Surface Layer in Sandy Solis
	NO Sulfidic Odor	NO Organic Streaking in Sandy Solis
	NO Aquic Moisture Regime	NO Listed on Local Hydric Solls List
	NO Reducing Conditions	NO Listed on National Hydric Solis List
1	YES Gleyed or Low Chroma Colors	NO Other (Explain in Remarks)

Remarks: Sample along perimeter; saturated to surface.

WETLAND DETERMINATION			
Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland?	Yes (No)
Mattend Mustelan Descent?	Man No	10.07	

Wetland Hydrology Present? (es) No Hydric Soils Present? Remarks: Puffin Reservoir. No wetland vegetation present. Site consists of flooded rectangular unvegetated pit. Water extremely turbid.

Page 1 of 2

Welformin

Page 2 of 2



Fourchette Fourchette Fourchette

Wetland Mitigation Monitoring Project Project/task number 23 Puffin 23 Flashligh 23 Penguin 23 Albatross Date for Land and Water Consulting Field Personnel Note 2001 Rhithron Sample Identification 28 29 20 23 Coclenterata Hydra 1 Oligochaeta Enchytracidae Enchytracidae Naididae Chaetogaster Nais elinguis 10 Nais variabilis Ophidonais serpentina Tubificidae Tubificidae - immature Limnodrilus hoffmeisteri Hirudinea Erpobdellidae Mooreobdella microstoma 3 1 Nephelopsis Glossiphoniidae Helobdella stagnalis Helobdella Glossiphonia Bivalvia Sphaeriidae Sphaerium Gastropoda Lymnaeidae Fossaria Physidae Physa 1 16 Planorbidae Gyraulus 1 Helisoma 7 Crustacea Cladocera Cladocera Copepoda Calanoida 12 Cyclopoida Ostracoda Ostracoda Amphipoda Gammarus 1 9 Hyalella azteca 37 Decapoda Orconectes Acarina Acari 1 Odonata Acshnidae Anax Libellulidae Libellulidae-early instar Sympetrum Coenagrionidae Coenagrionidae-early instar 45 Enallagma Lestidae Lestes 3 Callibaetis Ephemeroptera Bactidae Caenidae Caenis 1 Hemiptera Corixidae Corixidae - immature 6 20 Hesperocorixa 2 Sigara Trichocorixa Nepidae Ranatra Notonectidae Notonecta 3 3 7 Hydroptilidae - pupa Trichoptera Hydroptilidae Leptoceridae Leptoceridae - early instar ı Mystacides Ylodes Chrysomelidae Coleoptera Chrysomelidae Curculionidae Bagous Dytiscidae Acilius Hydroporinae - early instar larvae Hygrotus Liodessus Laccophilus Neoporus Elmidae Heterlimnius Haliplidae Haliplus Peltodytes Hydrophilidac Berosus 1 6 Helophorus Hydrobius Hydrochara Laccobius Tropisternus Diptera Ceratopogoninae Bezzia/Palpomyia Dasyhelea Chaoboridae Chaoborus Culicidae Anopheles Culex Ephydridae Ephydridae Simuliidac Simulium Sciomyzidae Sciomyzidae Stratiomyidae Odontomyia Chironomidae Acricotopus Chironomus Cladotanytarsus Corynoneura Cryptotendipes Dicrotendipes Einfeldia 13 32 Endochironomus Labrundinia Microtendipes 1 19 Orthocladius annectens Parachironomus

Montana Department of Transportation

Project Name

m	_		
LAND	&	WATER	B-46
	•	CHIMINET !	25 10

			LAND &	WATER B.	46
Paramerina					
Paratanytarsus					
Phaenopsectra					
Polypedilum					
Procladius				1	
Psectrocladius			1		
Psectrotanypus					
Pseudochironomus					
Tanypus					
Tanytarsus					
1111/1111111111111111111111111111111111					
TOTA	AL 3	22	202	62	
grids	. 30	30	17	30	
8	,		•		
Total taxa	1	10	20	10	
POET	2	3	5	3	
Chironomidae taxa	0	1	5	1	
Crustacea taxa + Mollusca taxa	0	3	3	3	
% Chironomidae			32.6732673	_	
Orthocladiinae/Chironomidae	#DIV/0!		3.03030303	0	
%Amphipoda		36.3636364		14.516129	
%Crustacea + %Mollusca			26.7326733		
HBI			7.54950495		
%Dominant taxon			22.2772277		
%Collector-Gatherers	0		45,5445545		
%Filterers	0		3.46534653		
70FIREIEIS	U	U	3.40334033	0	
Total taxa	1	3	3	3	
POET	3	3	3	3	
Chironomidae taxa	1	1	3	1	
Crustacea taxa + Mollusca taxa	1	5	5	5	
% Chironomidae	3	3	1	3	
Orthocladiinae/Chironomidae	2010 C C C C C C C C C C C C C C C C C C	1	i	í	
%Amphipoda	19,0000 ng cinemagasisina 1.3	;	i	í	
%Crustacea + %Mollusca	3	÷	i	3	
HBI	3	1	1	3	
%Dominant taxon	:	3	1	1	
	1	3	3	3	
%Collector-Gatherers	1	3	I	3	
%Filterers	3	3	1	3	
-:4		20		**	
site score	22	30	26	30	

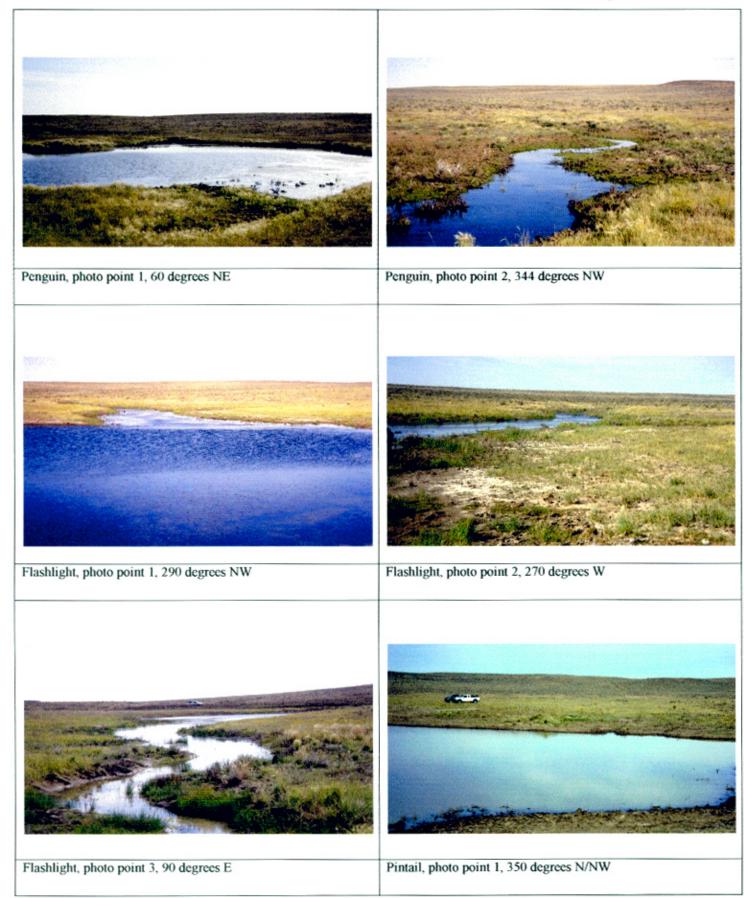
Appendix C

REPRESENTATIVE PHOTOGRAPHS

MDT Wetland Mitigation Monitoring Fourchette Creek Phillips County, Montana







2001 Fourchette Creek Sheet 1







Pintail, photo point 1, 284 degrees NW

Pintail, photo point 2, 330 degrees NW





Puffin, photo point 1, 340 degrees N/NW

Puffin, photo point 2, 315 degrees W/NW





Albatross, photo point 1, 0 degrees N

Albatross, photo point 2, 60 degrees E/NE

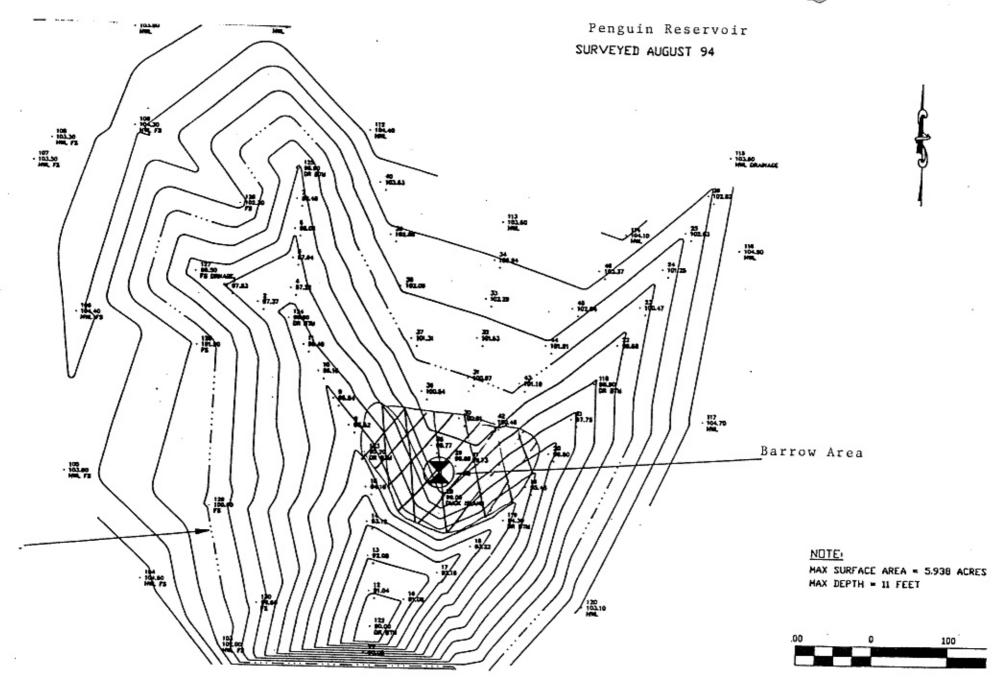
2001 Fourchette Creek Sheet 2

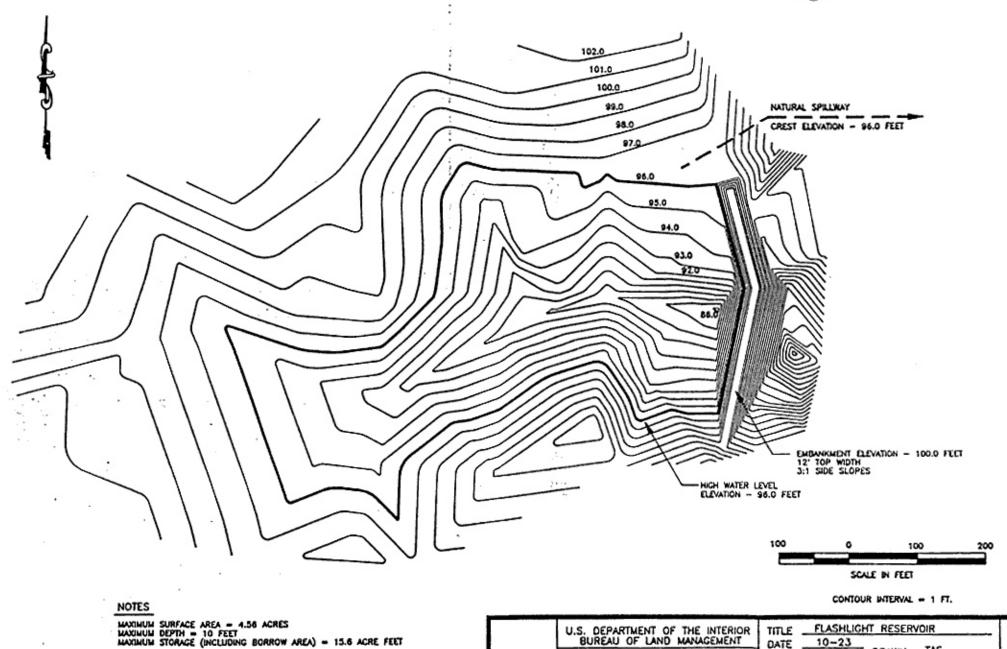
Appendix D

CONCEPTUAL SITE LAYOUTS

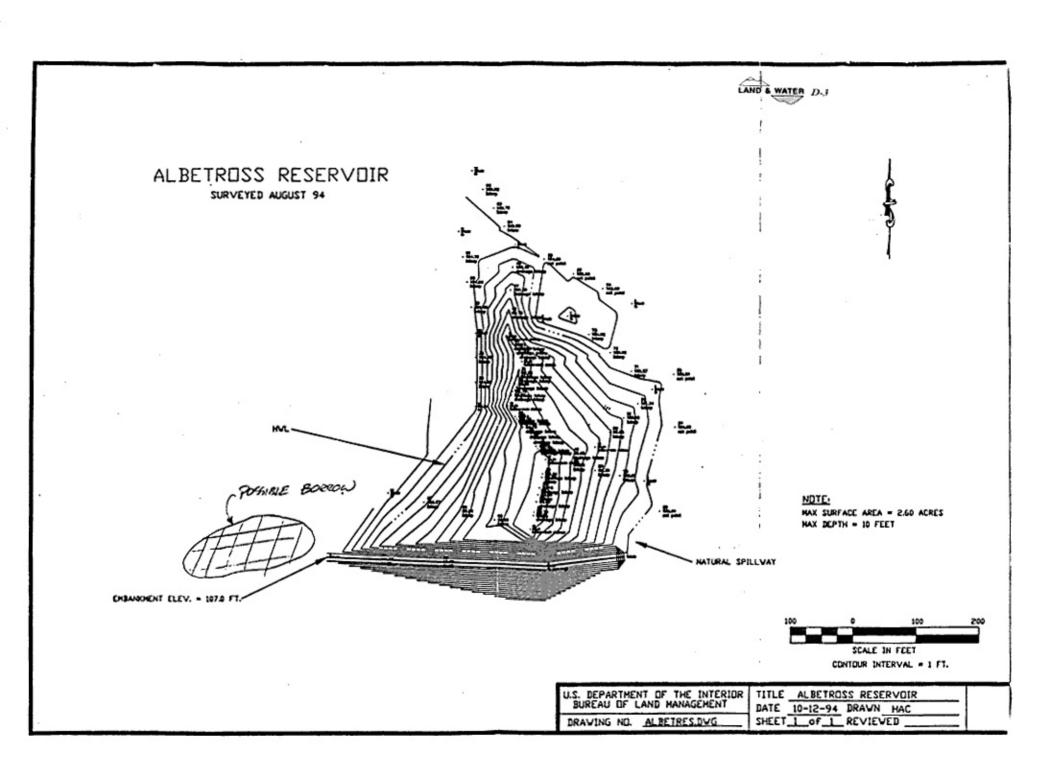
MDT Wetland Mitigation Monitoring Fourchette Creek Phillips County, Montana

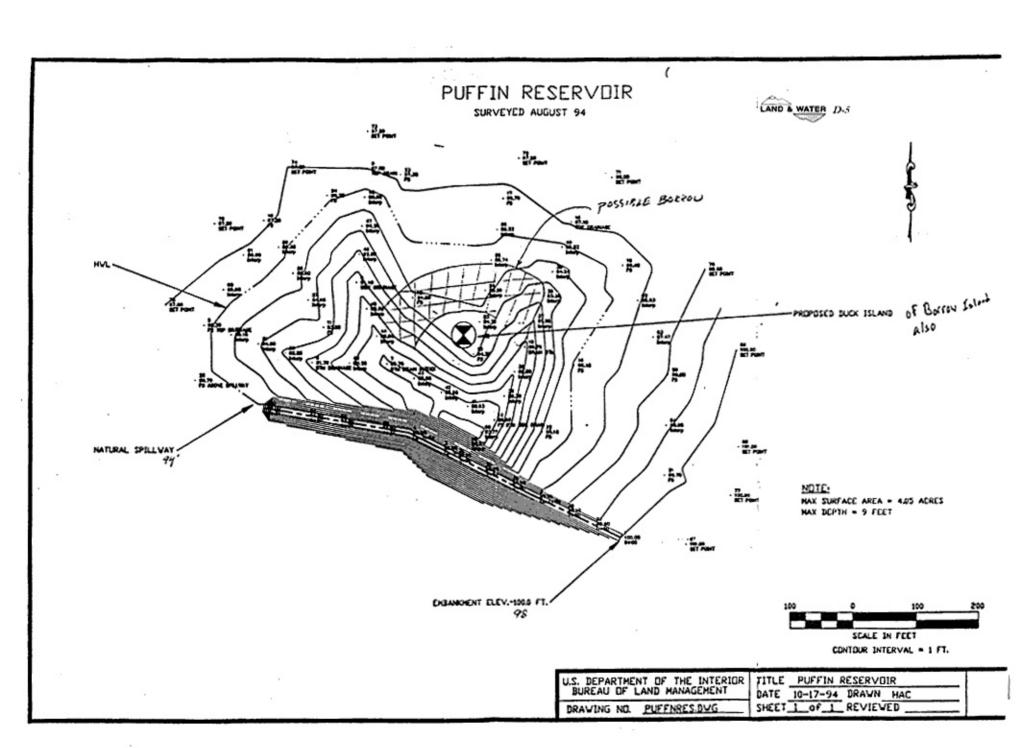






U.S. DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT 10-23 DATE SHEET _1 of _1 DRAWN _TAS DRAWING NO. __FLASHLT.DWG DESIGNED. REVIEWED APPROVED





Appendix E

BIRD SURVEY PROTOCOL
MACROINVERTEBRATE SAMPLING PROTOCOL
GPS PROTOCOL

MDT Wetland Mitigation Monitoring Fourchette Creek Phillips County, Montana



BIRD SURVEY PROTOCOL

The following is an outline of the MDT Wetland Mitigation Site Monitoring Bird Survey Protocol. Though each site is vastly different, the bird survey data collection methods must be standardized to a certain degree to increase repeatability. An Area Search within a restricted time frame will be used to collect the following data: a bird species list, density, behavior, and habitat-type use. There will be some decisions that team members must make to fit the protocol to their particular site. Each of the following sections and the desired result describes the protocol established to reflect bird species use over time.

Species Use within the Mitigation Wetland: Survey Method

Result: To conduct a bird survey of the wetland mitigation site within a restricted period of time and the budget allotment.

Sites that can be circumambulated or walked throughout.

These types of sites will include ponds, enhanced historic river channels, wet meadows, and any area that can be surveyed from the entirety of its perimeter or walked throughout. If the wetland is not uncomfortably inundated, conduct several "meandering" transects through the site in an orderly fashion (record the number and approximate location/direction of the transects in the field notebook; they do not have to be formalized or staked). If a very small portion of the site cannot be crossed due to inundation, this method will also apply. Though the sizes of the site vary, each site will require surveying to the fullest extent possible within a set time limit. The optimum times to conduct the survey are in the morning hours. Conduct the survey from sunrise to no later than 11:00 AM. (Note: some sites may have to be surveyed in the late afternoon or evening due to time constraints or weather; if this is the case, record the time of day and include this information in your report discussion.) If the survey is completed before 11:00 AM and no additions are being made to the list, then the task is complete. The overall limiting factor regarding the number of hours that are spent conducting this survey is the number of budgeted hours; this determination must be made by site by each individual.

In many cases, binoculars will be the only instrument that is needed to identify and count the birds using the wetland. If the wetland includes deep water habitat that can not be assessed with binoculars, then a scope and tripod are necessary. If this is the case, establish as many lookout posts as necessary from key vantage points to collect the data. Depending on the size of the open water, more time may be spent viewing the mitigation area from these vantage points than is spent walking the peripheries of more shallow-water wetlands.

Sites that cannot be circumambulated.

These types of sites will include large-bodied waters, such as reservoirs, particularly those with deep water habitat (>6 ft) close to the shore and no wetland development in that area of the shoreline. If one area of the reservoir was graded in such a way to create or enhance the development of a wetland, then that will be the area in which the ambulatory bird survey is conducted. The team member must then determine the length of the shoreline that will be surveyed during each visit.



As stated above in the ambulatory site section, these large sites most likely will have to be surveyed from established vantage points.

Species Use within the Mitigation Wetland: Data Recording

Result: A complete list of bird species using the site, an estimate of bird densities and associated behaviors, and identification of habitat use.

1. Bird Species List

Record the bird species on the Bird Survey - Field Data Sheet using the appropriate 4-letter code of the common name. The coding uses the first two letters of the first two words of the birds' common name or if one name, the first four (4) letters. For example, mourning dove is coded MODO and mallard is MALL. If an unknown individual is observed, use the following protocol and define your abbreviation at the bottom of the field data sheet: unknown shorebird: UNSB; unknown brown bird (UNBR); unknown warbler (UNWA); unknown waterfowl (UNWF). For a flyover of a flock of unknown species, use a term that describes the birds' general characteristics and include the approximate flock size in parentheses; do not fill in the habitat column. For example, a flock of black, medium-sized birds could be coded: UNBB / FO (25). You may also note on the data sheet if that particular individual is using a constructed nest box.

2. Bird Density

In the office, sum the Bird Survey – Field Data Sheet data by species and by behavior. Record this data in the Bird Summary Table.

3. Bird Behavior

Bird behavior must be identified by what is known. When a species is simply observed, the behavior that it is immediately exhibiting is what is recorded. Only behaviors that have discreet descriptive terms should be used. The following terms are recommended: breeding pair individual (BP); foraging (F); flyover (FO); loafing (L; e.g. sleeping, roosting, floating with head tucked under wing are loafing behaviors); and, nesting (N). If more behaviors are observed that do have a specific descriptive word, use them and we will add it to the protocol; descriptive words or phrases such as "migrating" or "living on site" are unknown behaviors.

4. Bird Species Habitat Use

We are interested in what bird species are using which particular habitat within the mitigation wetlands. This data is easily collected by simply recording what habitat the species was initially observed. Use the following broad category habitat classifications: aquatic bed (AB - rooted floating, floating-leaved, or submergent vegetation); forested (FO); marsh (MA – cattail, bulrush, emergent vegetation, etc. with surface water); open water (OW – primarily unvegetated); scrubshrub (SS); and upland buffer (UP); wet meadow (WM – sedges, rushes, grasses with little to no surface water). If other categories are observed onsite that are not suggested here, we will make a new category next year.



E-2

AQUATIC INVERTEBRATE SAMPLING PROTOCOL

Equipment List

- D-frame sampling net with 1 mm mesh. Wildco is a good source of these.
- Spare net.
- 1-liter plastic sample jars, wide-mouth. VWR has these: catalog #36319-707.
- 95% ethanol: Northwest Scientific in Billings carries this.

All these other things are generally available at hardware or sporting goods stores. Make the labels on an ink jet printer preferably.

- hip waders.
- pre-printed sample labels (printed on Rite-in-the-Rain or other coated paper, two labels per sample).
- pencil.
- plastic pail (3 or 5 gallon).
- large tea strainer or framed screen.
- towel.
- tape for affixing label to jar.
- cooler with ice for sample storage.

Site Selection

Select the sampling site with these considerations in mind:

- Select a site accessible with hip waders. If substrates are too soft, lay a wide board down to walk on.
- Determine a location that is representative of the overall condition of the wetland.

Sampling

Wetland invertebrates inhabit the substrate, the water column, the stems and leaves of aquatic vegetation, and the water surface. Your goal is to sweep the collecting net through each of these habitat types, and then to combine the resulting samples into the 1-liter sample jar.

Dip out about a gallon of water into the pail. Pour about a cup of ethanol into the sample jar. Fill out the top half of the sample labels, using pencil, since ink will dissolve in the ethanol.

Ideally, you can sample a swath of water column from near-shore outward to a depth of approximately 3 feet with a long sweep of the net, keeping the net at about half the depth of the water throughout the sweep. Sweep the water surface as well. Pull the net through a vegetated area, beneath the water surface, for at least a meter of distance.

Sample the substrate by pulling the net along the bottom, bumping it against the substrate several times as you pull.



This step is optional, but it gives you a chance to <u>see</u> that you've collected some invertebrates. Rinse the net out into the bucket, and look for insects, crustaceans, etc. If necessary, repeat the sampling process in a nearby location, and add the net contents to the bucket. Remember to sample all four environments.

Sieve the contents of the bucket through the straining device and pour or carefully scrape the contents of the strainer into the sample jar.

If you skip the bucket-and-sieve steps, simply lift handfuls of material out of the sampling net into the jars. In either case, please include some muck or mud and some vegetation in the jar. Often, you will have collected a large amount of vegetable material. If this is the case, lift out handfuls of material from the sieve into the jar, until the jar is about half full. Please limit material you include in the sample, so that there is only a single jar for each sample.

Top off the sample jar with enough ethanol to cover all the material in the jar. Leave as little headroom as possible.

It is not necessary to sample habitats in any specified order. Keep in mind that disturbing the habitats prior to sampling will chase off the animals you are trying to capture.

Complete the sample labels. Place one label inside the sample jar and tape the other label securely to the outside of the jar. Dry the jar before attaching the outer label if necessary. In some situations, it may be necessary to collect more than one sample at a site. If you take multiple samples from the same site, clearly indicate this by using individual sample numbers, along with the total number of samples collected at the site (e.g. Sample #3 of 5 total samples).

Photograph the sampled site.

Sample Handling/Shipping

- In the field, keep collected samples cool by storing them in a cooler. Only a small amount of ice is necessary.
- Inventory all samples, preparing a list of all sites and enumerating all samples, before shipping or delivering to the laboratory.
- Deliver samples to Rhithron.



GPS Mapping and Aerial Photo Referencing Procedure

The wetland boundaries, photograph location points and sampling locations were field located with mapping grade Trimble Geo III GPS units. The data was collected with a minimum of three positions per feature using Course/Acquisition code. The collected data was then transferred to a PC and differentially corrected to the nearest operating Community Base Station. The corrected data was then exported to ACAD drawings in Montana State Plain Coordinates NAD 83 international feet.

The GPS positions collected and processed had a 68% accuracy of 7 feet except in isolated areas of Tasks .008 and .011, where it went to 12 feet. This is within the 1 to 5 meter range listed as the expected accuracy of the mapping grade Trimble GPS.

Aerial reference points were used to position the aerial photographs. This positioning did not remove the distortion inherent in all photos; this imagery is to be used as a visual aide only. The located wetland boundaries were given a final review by the wetland biologist and adjustments were made if necessary.

Any relationship of features located to easement or property lines are not to be construed from these figures. These relationships can only be determined with a survey by a licensed surveyor.

